REQUEST FOR PROPOSALS

FEASIBILITY STUDY FOR THE

PLACENCIA PENINSULA PILOT WASTEWATER MANAGEMENT SYSTEM

Submission Deadline: **4:00 PM**

LOCAL TIME (BELMOPAN, BELIZE)

DECEMBER 22, 2010

Submission Place:

Joseph Waight
Financial Secretary
Ministry of Finance
New Administration Building
Belmopan
Belize
Phone: + (501) 822-2362

SEALED PROPOSALS SHALL BE CLEARLY MARKED AND RECEIVED PRIOR TO THE TIME AND DATE SPECIFIED ABOVE. PROPOSALS RECEIVED AFTER SAID TIME AND DATE WILL NOT BE ACCEPTED OR CONSIDERED.

REQUEST FOR PROPOSALS

Section 1: INTRODUCTION

The U.S. Trade and Development Agency ("USTDA") has provided a grant in the amount of US$385,000 to the Ministry of Finance (the "Grantee") of Belize (the "Host Country") in accordance with a grant agreement dated September 8, 2010 (the "Grant Agreement"). The Grant Agreement to conduct a feasibility study (the "Study") for the Placencia Peninsula Pilot Wastewater Management System Project (the "Project"). The Study will develop an implementation plan for an effective wastewater management system on the Placencia Peninsula to meet the sanitation needs of this growing region of Belize. The Grant Agreement is attached at Annex 4 for reference. The Grantee is soliciting technical proposals from qualified U.S. firms to provide expert consulting services to perform the Feasibility Study.

1.1 BACKGROUND SUMMARY

Belize's Placencia Peninsula is located on the country's southeast coast and is an important tourist destination. The peninsula is approximately 16 miles long and 1,000 feet wide with an extensive tidal lagoon on its western side. There are two main communities on the peninsula (Placencia and Seine Bight). Additionally, there are individual residences, commercial establishments, and beach resorts located throughout the peninsula. For the most part, wastewater disposal from all existing residential sources consists of either direct disposal to the ground from either house laterals or septic tank outlets. Combined with high rate of commercial development on the peninsula, this has a significant effect on public health and water quality in the Placencia lagoon. The Project, which will be carried out with the cooperation of the Inter-American Development Bank ("IDB") and will entail use of a revolving fund, aims to develop new wastewater management infrastructure for the peninsula that will provide a more effective means to manage existing wastewater sources.

The Study will assess the technical alternatives for designing an effective inter-municipal wastewater collection, treatment, and disposal system on the Placencia Peninsula. The system ultimately recommended by the Study may include a combination of centralized and decentralized components that manage wastewater depending on the location of generators. For instance, each of the principal communities on the Placencia Peninsula could be provided with a centralized wastewater collection and treatment system, while individual dispersed residences and commercial establishments in isolated locations on the peninsula may be served by decentralized systems designed specifically for each source and its location.

The Study will also entail an assessment of the most favorable options for the implementation of an economically justifiable wastewater management system, in terms of both recommending specific technologies and in terms of identifying potential means of funding. The precise mechanism to ensure sufficient revenues to replenish the IDB revolving facility has yet to be defined. Therefore, the Study will evaluate the tariff levels necessary to obtain full cost recovery based on the customers to be served by the preferred approach, with consideration of the capacity to assess fees, customers' willingness to pay, and possible cross-subsidization of tariffs and special charges for resorts based on an occupancy fee.

This analysis will also be an important element for defining the effectiveness of the financial approach that will be used to implement the Project recommended in the Study.

As the official sponsor in the Government of Belize for projects with the multilateral development banks (including the IDB), the Ministry of Finance is the Grantee for this Study. It should be noted that the Grantee and the IDB will be coordinating with Belize Water Services Limited as a technical liaison for the Project.

A background Desk Study is provided for reference in Annex 2.

1.2 OBJECTIVE

The objective of the Study for the Placencia Peninsula Pilot Wastewater Management System Project ("Project") is to provide a roadmap and guidelines for the implementation of a pilot wastewater management system for the Placencia Peninsula. The Study will assess technical alternatives, as well as the most favorable options for implementation of an economically justifiable wastewater management system for designing an effective inter-municipal wastewater collection, treatment, and disposal system on the Placencia Peninsula.

The Terms of Reference ("TOR") for this Study is attached as Annex 5.

1.3 PROPOSALS TO BE SUBMITTED

Technical proposals are solicited from interested and qualified U.S. firms. The administrative and technical requirements as detailed throughout the Request for Proposals ("RFP") will apply. Specific proposal format and content requirements are detailed in Section 3.

The amount for the contract has been established by a USTDA grant of US$385,000 **The USTDA grant of US$385,000 is a fixed amount. Accordingly, COST will not be a factor in the evaluation and therefore, cost proposals should not be submitted**. Upon detailed evaluation of technical proposals, the Grantee shall select one firm for contract negotiations.

1.4 CONTRACT FUNDED BY USTDA

In accordance with the terms and conditions of the Grant Agreement, USTDA has provided a grant in the amount of US$385,000 to the Grantee. The funding provided under the Grant Agreement shall be used to fund the costs of the contract between the Grantee and the U.S. firm selected by the Grantee to perform the TOR. The contract must include certain USTDA Mandatory Contract Clauses relating to nationality, taxes, payment, reporting, and other matters. The USTDA nationality requirements and the USTDA Mandatory Contract Clauses are attached at Annexes 3 and 4, respectively, for reference.

Section 2: INSTRUCTIONS TO OFFERORS

2.1 PROJECT TITLE

The project is called the "Placencia Peninsula Pilot Wastewater Management System."

2.2 DEFINITIONS

Please note the following definitions of terms as used in this RFP.

The term "Request for Proposals" means this solicitation of a formal technical proposal, including qualifications statement.
The term "Offeror" means the U.S. firm, including any and all subcontractors, which responds to the RFP and submits a formal proposal and which may or may not be successful in being awarded this procurement.

2.3 DESK STUDY

USTDA sponsored a Desk Study to address technical, financial, sociopolitical, environmental, and other aspects of the proposed Project. A copy of the report is attached at Annex 2 for background information only. Please note that the TOR referenced in the report are included in this RFP as Annex 5.

2.4 EXAMINATION OF DOCUMENTS

Offerors should carefully examine this RFP. It will be assumed that Offerors have done such inspection and that through examinations, inquiries and investigation they have become familiarized with local conditions and the nature of problems to be solved during the execution of the Study.

Offerors shall address all items as specified in this RFP. Failure to adhere to this format may disqualify an Offeror from further consideration.

Submission of a proposal shall constitute evidence that the Offeror has made all the above mentioned examinations and investigations, and is free of any uncertainty with respect to conditions which would affect the execution and completion of the Study.

2.5 PROJECT FUNDING SOURCE

The Study will be funded under a grant from USTDA. The total amount of the grant is not to exceed US$385,000.

2.6 RESPONSIBILITY FOR COSTS

Offeror shall be fully responsible for all costs incurred in the development and submission of the proposal. Neither USTDA nor the Grantee assumes any obligation as a result of the issuance of this RFP, the preparation or submission of a proposal by an Offeror, the evaluation of proposals, final selection, or negotiation of a contract.

2.7 TAXES

Offerors should submit proposals that note that in accordance with the USTDA Mandatory Contract Clauses, USTDA grant funds shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in the Host Country.

2.8 CONFIDENTIALITY

The Grantee will preserve the confidentiality of any business proprietary or confidential information submitted by the Offeror, which is clearly designated as such by the Offeror, to the extent permitted by the laws of the Host Country.

2.9 ECONOMY OF PROPOSALS

Proposal documents should be prepared simply and economically, providing a comprehensive yet concise description of the Offeror's capabilities to satisfy the requirements of the RFP. Emphasis should be placed on completeness and clarity of content.

2.10 OFFEROR CERTIFICATIONS

The Offeror shall certify (a) that its proposal is genuine and is not made in the interest of, or on behalf of, any undisclosed person, firm, or corporation, and is not submitted in conformity with, and agreement of, any undisclosed group, association, organization, or corporation; (b) that it has not directly or indirectly induced or solicited any other Offeror to put in a false proposal; (c) that it has not solicited or induced any other person, firm, or corporation to refrain from submitting a proposal; and (d) that it has not sought by collusion to obtain for itself any advantage over any other Offeror or over the Grantee or USTDA or any employee thereof.

2.11 CONDITIONS REQUIRED FOR PARTICIPATION

Only U.S. firms are eligible to participate in this tender. However, U.S. firms may utilize subcontractors from the Host Country for up to 20 percent of the amount of the USTDA grant for specific services from the TOR identified in the subcontract. USTDA's nationality requirements, including definitions, are detailed in Annex 3.

2.12 LANGUAGE OF PROPOSAL

All proposal documents shall be prepared and submitted in English, and only English.

2.13 PROPOSAL SUBMISSION REQUIREMENTS

The Cover Letter in the proposal must be addressed to:

Joseph Waight
Financial Secretary
Ministry of Finance
New Administration Building
Belmopan
Belize
Phone: + (501) 822-2362

An Original and three (3) copies of your proposal must be received at the above address no later than 4:00 PM, on December 22, 2010.

Proposals may be either sent by mail, overnight courier, or hand-delivered. Whether the proposal is sent by mail, courier or hand-delivered, the Offeror shall be responsible for actual delivery of the proposal to the above address before the deadline. Any proposal received after the deadline will be returned unopened. The Grantee will promptly notify any Offeror if its proposal was received late.

Upon timely receipt, all proposals become the property of the Grantee.

2.14 PACKAGING

The original and each copy of the proposal must be sealed to ensure confidentiality of the information. The proposals should be individually wrapped and sealed, and labeled for content including "original" or "copy number x"; the original and eight (8) copies should be collectively wrapped and sealed, and clearly labeled.

Neither USTDA nor the Grantee will be responsible for premature opening of proposals not properly wrapped, sealed and labeled.

2.15 AUTHORIZED SIGNATURE

The proposal must contain the signature of a duly authorized officer or agent of the Offeror empowered with the right to bind the Offeror.

2.16 EFFECTIVE PERIOD OF PROPOSAL

The proposal shall be binding upon the Offeror for ninety (90) days after the proposal due date, and Offeror may withdraw or modify this proposal at any time prior to the due date upon written request, signed in the same manner and by the same person who signed the original proposal.

2.17 EXCEPTIONS

All Offerors agree by their response to this RFP announcement to abide by the procedures set forth herein. No exceptions shall be permitted.

2.18 OFFEROR QUALIFICATIONS

As provided in Section 3, Offerors shall submit evidence that they have relevant past experience and have previously delivered advisory, feasibility study and/or other services similar to those required in the TOR, as applicable.

2.19 RIGHT TO REJECT PROPOSALS

The Grantee reserves the right to reject any and all proposals.

2.20 PRIME CONTRACTOR RESPONSIBILITY

Offerors have the option of subcontracting parts of the services they propose. The Offeror's proposal must include a description of any anticipated subcontracting arrangements, including the name, address, and qualifications of any subcontractors. USTDA nationality provisions apply to the use of subcontractors and are set forth in detail in Annex 3. The successful Offeror shall cause appropriate provisions of its contract, including all of the applicable USTDA Mandatory Contract Clauses, to be inserted in any subcontract funded or partially funded by USTDA grant funds.

2.21 AWARD

The Grantee shall make an award resulting from this RFP to the best qualified Offeror, on the basis of the evaluation factors set forth herein. The Grantee reserves the right to reject any and all proposals received and, in all cases, the Grantee will be the judge as to whether a proposal has or has not satisfactorily met the requirements of this RFP.

2.22 COMPLETE SERVICES

The successful Offeror shall be required to (a) provide local transportation, office space and secretarial support required to perform the TOR if such support is not provided by the Grantee; (b) provide and perform all necessary labor, supervision and services; and (c) in accordance with best technical and business practice, and in accordance with the requirements, stipulations, provisions and conditions of this RFP and the resultant contract, execute and complete the TOR to the satisfaction of the Grantee and USTDA.

2.23 INVOICING AND PAYMENT

Deliverables under the contract shall be delivered on a schedule to be agreed upon in a contract with the Grantee. The Contractor may submit invoices to the designated Grantee Project Director in accordance with a schedule to be negotiated and included in the contract. After the Grantee's approval of each invoice, the Grantee will forward the invoice to USTDA. If all of the requirements of USTDA's Mandatory Contract Clauses are met, USTDA shall make its respective disbursement of the grant funds directly to the U.S. firm in the United States. All payments by USTDA under the Grant Agreement will be made in U.S. currency. Detailed provisions with respect to invoicing and disbursement of grant funds are set forth in the USTDA Mandatory Contract Clauses attached in Annex 4.

Section 3: PROPOSAL FORMAT AND CONTENT

To expedite proposal review and evaluation, and to assure that each proposal receives the same orderly review, all proposals must follow the format described in this section.

Proposal sections and pages shall be appropriately numbered and the proposal shall include a Table of Contents. Offerors are encouraged to submit concise and clear responses to the RFP. Proposals shall contain all elements of information requested without exception. Instructions regarding the required scope and content are given in this section. The Grantee reserves the right to include any part of the selected proposal in the final contract.

The proposal shall consist of a technical proposal only. A cost proposal is NOT required because the amount for the contract has been established by a USTDA grant of US$385,000 which is a fixed amount.

Offerors shall submit one (1) original and three (3) copies of the proposal. Proposals received by fax cannot be accepted.

Each proposal must include the following:

Transmittal Letter,
Cover/Title Page,
Table of Contents,
Executive Summary,
Company Information,
Organizational Structure, Management Plan, and Key Personnel,
Technical Approach and Work Plan, and
Experience and Qualifications.

Detailed requirements and directions for the preparation of the proposal are presented below.

3.1 EXECUTIVE SUMMARY

An Executive Summary should be prepared describing the major elements of the proposal, including any conclusions, assumptions, and general recommendations the Offeror desires to make. Offerors are requested to make every effort to limit the length of the Executive Summary to no more than five (5) pages.

3.2 COMPANY INFORMATION

For convenience, the information required in this Section 3.2 may be submitted in the form attached in Annex 6 hereto.

3.2.1 Company Profile

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), the information below must be provided for each subcontractor.

1. Name of firm and business address (street address only), including telephone and fax numbers.

2. Year established (include predecessor companies and year(s) established, if appropriate).

3. Type of ownership (e.g. public, private or closely held).

4. If private or closely held company, provide list of shareholders and the percentage of their ownership.

5. List of directors and principal officers (President, Chief Executive Officer, Vice-President(s), Secretary and Treasurer; provide full names including first, middle and last). Please place an asterisk (*) next to the names of those principal officers who will be involved in the Feasibility Study.

6. If Offeror is a subsidiary, indicate if Offeror is a wholly-owned or partially-owned subsidiary. Provide the information requested in items 1 through 5 above for the Offeror's parent(s).

7. Project Manager's name, address, telephone number, e-mail address and fax number .

3.2.2 Offeror's Authorized Negotiator

Provide name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

3.2.3 Negotiation Prerequisites

1. Discuss any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and reflect such impact within the project schedule.

2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

3.2.4 Offeror's Representations

If any of the following representations cannot be made, or if there are exceptions, the Offeror must provide an explanation.

1. Offeror is a corporation *[insert applicable type of entity if not a corporation]* duly organized, validly existing and in good standing under the laws of the State of _____. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority. The Offeror has included, with this proposal, a certified copy of its Articles of Incorporation, and a certificate of good standing issued within one month of the date of its proposal by the State of _____.

2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.

3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.

4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.

5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract

with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

3.3 ORGANIZATIONAL STRUCTURE, MANAGEMENT, AND KEY PERSONNEL

Describe the Offeror's proposed project organizational structure. Discuss how the project will be managed including the principal and key staff assignments for this Feasibility Study. Identify the Project Manager who will be the individual responsible for this project. The Project Manager shall have the responsibility and authority to act on behalf of the Offeror in all matters related to the Study.

Provide a listing of personnel (including subcontractors) to be engaged in the project, including both U.S. and local subcontractors, with the following information for key staff: position in the project; pertinent experience, curriculum vitae; other relevant information. If subcontractors are to be used, the Offeror shall describe the organizational relationship, if any, between the Offeror and the subcontractor.

A manpower schedule and the level of effort for the project period, by activities and tasks, as detailed under the Technical Approach and Work Plan shall be submitted. A statement confirming the availability of the proposed project manager and key staff over the duration of the project must be included in the proposal.

3.4 TECHNICAL APPROACH AND WORK PLAN

Describe in detail the proposed Technical Approach and Work Plan (the "Work Plan"). Discuss the Offeror's methodology for completing the project requirements. Include a brief narrative of the Offeror's methodology for completing the tasks within each activity series. Begin with the information gathering phase and continue through delivery and approval of all required reports.

Prepare a detailed schedule of performance that describes all activities and tasks within the Work Plan, including periodic reporting or review points, incremental delivery dates, and other project milestones.

Based on the Work Plan, and previous project experience, describe any support that the Offeror will require from the Grantee. Detail the amount of staff time required by the Grantee or other participating agencies and any work space or facilities needed to complete the Feasibility Study.

3.5 SECTION 5: EXPERIENCE AND QUALIFICATIONS

Provide a discussion of the Offeror's experience and qualifications that are relevant to the objectives and TOR for the Study. If a subcontractor(s) is being used, similar information must be provided for the prime and each subcontractor firm proposed for the project. The Offeror shall provide information with respect to relevant experience and qualifications of

key staff proposed. The Offeror shall include letters of commitment from the individuals proposed confirming their availability for contract performance.

As many as possible but not more than six (6) relevant and verifiable project references must be provided for the Offeror and any subcontractor, including the following information:

Project name,
Name and address of client (indicate if joint venture),
Client contact person (name/ position/ current phone and fax numbers),
Period of Contract,
Description of services provided,
Dollar amount of Contract, and
Status and comments.

Offerors are strongly encouraged to include in their experience summary primarily those projects that are similar to or larger in scope than the Study as described in this RFP.

Section 4: AWARD CRITERIA

Individual proposals will be initially evaluated by a Procurement Selection Committee of representatives from the Grantee. The Committee will then conduct a final evaluation and completion of ranking of qualified Offerors. The Grantee will notify USTDA of the best qualified Offeror, and upon receipt of USTDA's no-objection letter, the Grantee shall promptly notify all Offerors of the award and negotiate a contract with the best qualified Offeror. If a satisfactory contract cannot be negotiated with the best qualified Offeror, negotiations will be formally terminated. Negotiations may then be undertaken with the second most qualified Offeror and so forth.

The selection of the Contractor will be based on the following criteria and their corresponding assigned weights:

1. Experience with wastewater treatment plant planning, design, and operation (15%)
2. Experience with wastewater technologies that could be applicable to the Project (15%)
3. Experience with the economic evaluation and financial modeling of wastewater treatment projects (15%)
4. Experience with wastewater utility assessment and capabilities evaluation (15%)
5. Regional experience in the Caribbean and Central America regions (including Belize) or in comparable emerging market economies (15%)
6. Project management experience pertaining to the implementation of wastewater treatment projects (10%)
7. Experience with and knowledge of the procedures and requirements of the Inter-American Development Bank including, at a minimum, procurement procedures and project requirements for financing (10%)
8. Working knowledge of U.S. companies who provide relevant services and technologies for wastewater projects in the Caribbean and Central America regions (5%)

Proposals that do not include all requested information may be considered non-responsive.

Price will not be a factor in Contractor selection.

ANNEX 1

FEDBIZOPPS ANNOUNCEMENT

Mr. Joseph Waight, Financial Secretary, Ministry of Finance, New Administration Building, Belmopan, Belize, Phone: + (501) 822-2362

B – Belize: Placencia Peninsula Pilot Wastewater Management System Feasibility Study

POC: Nina Patel, Information Resource Center, USTDA, 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901, Tel: (703) 875-4357, Fax: (703) 875-4009. Placencia Peninsula Pilot Wastewater Management System Feasibility Study, Belize.

The Grantee (the Ministry of Finance) invites submission of qualifications and proposal data (collectively referred to as the "Proposal") from interested U.S. firms that are qualified on the basis of experience and capability to develop a Feasibility Study for the Placencia Peninsula Pilot Wastewater Management System in Belize.

The objective of the Placencia Peninsula Pilot Wastewater Management System Feasibility Study is to provide a roadmap and guidelines for the implementation of a pilot wastewater management system for the Placencia Peninsula. The Feasibility Study will assess technical alternatives, as well as the most favorable options for implementation of an economically justifiable wastewater management system for designing an effective inter-municipal wastewater collection, treatment, and disposal system on the Placencia Peninsula.

The Terms of Reference (TOR) for the Feasibility Study include the following tasks: 1) Data Collection and Review; 2) Potable Water Source Investigation and Characterization; 3) Wastewater Sources Analysis; 4) Wastewater Collection Analysis; 5) Wastewater Treatment Technologies Evaluation; 6) Economic Analysis; 7) Conceptual Design Development; 8) Preliminary Environmental Analysis; 9) Developmental Impact Assessment; 10) Implementation Plan and Schedule; 11) Financial Plan; and 9) Final Report.

The U.S. firm selected will be paid in U.S. dollars from a $385,000 grant to the Grantee from the U.S. Trade and Development Agency (USTDA).

A detailed Request for Proposals (RFP), which includes requirements for the Proposal, TOR, and a background desk study report are available from USTDA, at 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901. To request the RFP in PDF format, please go to:

https://www.ustda.gov/businessopps/rfpform.asp.

Requests for a mailed hardcopy version of the RFP may also be faxed to the Information Resource Center (IRC), USTDA at 703-875-4009. In the fax, please include your firm's name, contact person, address, and telephone number. Some firms have found that RFP materials sent by U.S. mail do not reach them in time for preparation of an adequate response. Firms that want USTDA to use an overnight delivery service should include the name of the delivery service and your firm's account number in the request for the

RFP. Firms that want to send a courier to USTDA to retrieve the RFP should allow one hour after faxing the request to USTDA before scheduling a pick-up. Please note that no telephone requests for the RFP will be honored. Please check your internal fax verification receipt. Because of the large number of RFP requests, USTDA cannot respond to requests for fax verification. Requests for RFPs received before 4:00 PM will be mailed the same day. Requests received after 4:00 PM will be mailed the following day. Please check with your courier and/or mail room before calling USTDA.

Only U.S. firms and individuals may bid on this USTDA financed activity. Interested firms, their subcontractors and employees of all participants must qualify under USTDA's nationality requirements as of the due date for submission of qualifications and proposals and, if selected to carry out the USTDA-financed activity, must continue to meet such requirements throughout the duration of the USTDA-financed activity. All goods and services to be provided by the selected firm shall have their nationality, source and origin in the U.S. or host country. The U.S. firm may use subcontractors from the host country for up to 20 percent of the USTDA grant amount. Details of USTDA's nationality requirements and mandatory contract clauses are also included in the RFP.

Interested U.S. firms should submit their Proposal in English directly to the Grantee by 4:00 PM (local time in Belmopan, Belize), December 22, 2010, at the above address. Evaluation criteria for the Proposal are included in the RFP. Price will not be a factor in contractor selection, and therefore, cost proposals should NOT be submitted. The Grantee reserves the right to reject any and/or all Proposals. The Grantee also reserves the right to contract with the selected firm for subsequent work related to the project. The Grantee is not bound to pay for any costs associated with the preparation and submission of Proposals.

ANNEX 2

BACKGROUND DESK STUDY REPORT

Desk Study Final Report

Inter-American Development Bank

THE CARIBBEAN WASTEWATER MANAGEMENT FUND PROJECT

PERFORMANCE TECHNOLOGY, INC.
P.O. Box 1778
Lewiston, Maine 04240
Telephone/Fax (207) 795-0510

July 2010

This report was funded by the U.S. Trade and Development Agency (TDA), an export promotion agency of the United States Government. The opinions, findings, conclusions, or recommendations expressed in this document are those of the authors and do not necessarily represent the official position or policies of TDA.

Mailing and Delivery Address: 1000 Wilson Boulevard, Suite 1600, Arlington, VA 22209-3901
Phone: 703-875-4357 – **Fax:** 703-875-4009 – **Web site:** www.tda.gov – **email:** info@tda.gov

THE CARIBBEAN WASTEWATER MANAGEMENT FUND PROJECT

Desk Study Report

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1 EXECUTIVE SUMMARY

The Inter-American Development Bank (IDB) has requested assistance from the United States Trade and Development Agency (USTDA) for support of the IDB's development of the prototype Caribbean Regional Fund for Wastewater Management (CReW). Through the CReW initiative, the IDB is seeking to test alternative innovative financing approaches to support the development of wastewater management projects throughout the Caribbean region. The manner by which the alternative financing approaches will be investigated will consist of the implementation of five pilot projects in various locations within the Caribbean region. Two of these CReW pilot projects form the basis for IDB's request for USTDA support. The two activities that USTDA is being asked to support consist of:

1. The completion of a feasibility study for development of a comprehensive wastewater management system for the Placencia Peninsula in Belize. The Placencia Peninsula is one of the principal tourist locations in Belize and requires improved wastewater management to prevent continuing and further damage to the ecological environment of the Peninsula.
2. Technical assistance to the National Water Commission in Jamaica for their evaluation of existing wastewater treatment facilities. Currently, the Government of Jamaica is undergoing a program for improving environmental conditions throughout the country which includes the rehabilitation, expansion, upgrade or retirement of existing wastewater treatment plants. Many of these facilities do not meet existing Jamaican environmental regulations. The requested USTDA support will fund the development of specific procedures for wastewater treatment plant evaluation and for accomplishing model evaluations at three reference facilities as a demonstration of sound practice.

Terms of reference (TORs) and budgets have been established for each of the above consultant activities which are presented in this Desk Study report. Separate TORs were developed for each project because of the diverse nature of the technical aspects of each endeavor.

In evaluating the two subject IDB pilot projects, PerformTech considered how each project would comply with USTDA funding objectives. As a result of its investigation, PerformTech believes that the projects comply with USTDA objectives in the following manner:

- **Help improve environmental and wastewater management service and infrastructure conditions in Belize and Jamaica and, through possible replication, in other countries in the Caribbean region** - By their nature, each project is designed to enhance wastewater management in the pilot project locales. In Belize, the project is intended to develop a wastewater management system on the Placencia Peninsula which is currently facing significant development pressure as a result of tourism and does not have an effective wastewater management system. In Jamaica, the National Water Commission is seeking to improve the performance of its existing wastewater treatment facilities. Each of the projects will improve environmental conditions in the locales where they are located and will also help define the pilot project financial approaches that can then be replicated in other countries.
- **Be technically, financially and economically sound and based on commonly accepted best practices and sustainable approaches** - The TORs and budgets associated with each of the identified studies and

assistance initiatives are aimed at utilizing sound practice approaches for developing a wastewater management system for Placencia Peninsula as well as for evaluating existing wastewater treatment facilities in Jamaica. PerformTech has based its TORs on sound practice experience in similar evaluations in other developing countries.

- **Be a development priority for the Governments of Belize and Jamaica** - Because of the significant reliance on tourism in both Belize and Jamaica, projects aimed at improving environment conditions (which, in both cases, is the principal basis for tourist attraction to the region) are expected to be a high priority of the government in each country. In addition, the IDB as project sponsor recognizes the importance of wastewater management in achieving sustainable development in the region. PerformTech believes that the projects are a government priority. For example, the government of Belize has established a target goal of 100% coverage for effective sanitation services by the year 2015.

- **Stimulate a meaningful level of exports of environmental equipment, technology and services from the United States to the region** - The strict estimate of exports that could be realized from the physical implementation of the technical components of the pilot projects in Belize and Jamaica may not lead to a significant level of U.S. export. However, it is important to note that the financial nature of the CReW pilot projects is aimed at developing replicable financial models for the development of wastewater management systems and services throughout the region. As a result, the export potential benefits of the pilot projects may be considerably higher than that measured simply by the economic value of the U.S. export sector to be realized from the development of a wastewater management system on Placencia Peninsula and the rehabilitation of the wastewater treatment facilities in Jamaica. PerformTech believes that the export potential from this extended application of the results of the pilot projects is meaningful and sufficient to support USTDA assistance.

- **Enhance the implementation process of the identified projects as a result of USTDA participation through full or partial funding** - In a strict sense, the IDB may not require USTDA support to move the pilot projects forward. However, IDB's request of USTDA provides a significant opportunity for fostering a cooperative relationship between two entities that are seeking to foster improved environmental conditions in developing countries. In addition, USTDA support for the IDB initiative can help to facilitate and accelerate the development of the pilot projects to the benefit of potential U.S. exports.

As a result of the above, PerformTech recommends that USTDA provides support to the Inter-American Development Bank for development of the two pilot projects in Belize and Jamaica. Estimated budgets for each of the technical assistance initiatives indicate a potential funding level of $149,805 for the Jamaica pilot project and $384,240 for the Belize pilot project. The public sponsors for the pilot projects who will serve as grantees for USTDA assistance will be the Ministry of Finance in Belize and the National Water Commission in Jamaica.

2
PROJECT DESCRIPTION

2.1 INTRODUCTION

The Inter-American Development Bank (IDB) has requested assistance from the United States Trade and Development Agency (USTDA) for support of the IDB's development of the prototype Caribbean Regional Fund for Wastewater Management (CReW). Through the CReW initiative, the IDB is seeking to test alternative innovative financing approaches to support the development of wastewater management projects throughout the Caribbean region.

Through the CReW facility, the IDB, in partnership with the United Nations Environment Programme (UNEP) is seeking to use the Global Environment Facility (GEF) resources to help mobilize greater investments in wastewater management facilities. In September 2008, IDB and UNEP jointly applied for US$20 million from the GEF and a Project Identification Form was submitted to the Secretary of the GEF on September 25th, 2008 and then received the GEF CEO's endorsement. A joint request for a Project Preparation Grant was also presented to the GEF and approved on December 22, 2008. Project preparation by IDB is currently underway. A copy of the Project Identification form is shown in Annex 4 for additional background to the proposed CReW initiative.

To conceptually develop the CReW initiative, a Washington-based consultant (Resource Mobilization Advisors (RMA)) was commissioned by the IDB to evaluate the manner by which the CReW could be implemented. The consultant's work included making recommendations concerning the structure, organization and operation of the CReW to maximize its impact on wastewater management development in the region. The initial RMA consulting effort sought to accomplish four objectives including intent to:

1. Define the impediments to wastewater management capital improvements in the region.
2. Recommend the structure, organization and operation of the proposed fund.
3. Identify potential pilot projects by which the fund prototype would be tested and further evaluated.
4. Develop an implementation plan for the CReW initiative and its pilot projects.

In consultation with local wastewater management utilities, key policymakers and financial institutions in various regional countries, five pilot projects were identified and recommended by RMA for implementation as part of the CReW development. These wastewater management oriented pilot projects were recommended and subsequently selected because they would:

1. Promote the broad goals of the CReW.
2. Utilize sustainable financial mechanisms.
3. Establish innovative financial models that could be replicated throughout the region.
4. Move quickly to implementation through initial expressions of strong support from national and local government officials.

5. Be ready for financing by the beginning of 2010.

As a result of their observations and evaluation, RMA made the following recommendation concerning the formation of the CReW:

> *Based on the wide divergence of financial status of water utilities in the region, and the range of local financial resources available to them, it was determined that the CReW should not seek to offer one financial product to implement wastewater management projects. Rather, it was felt that flexibility in the use of multiple financial mechanisms would produce the best results."*

This conclusion forms the basis for the use of the individual pilot projects that were identified as important to defining the alternative financing approaches by which the fund could achieve its optimum results. In addition, this use of varied financial mechanisms is consistent with the GEF intent to implement innovative financial programs in the region. The five pilot projects identified by RMA and selected by the IDB include the following:

1. Development of an inter-municipal wastewater system for the Placencia Peninsula in Belize (Inter-municipal water services) (*This is one of the projects that is the subject of the IDB proposal to USTDA and of this Desk Study. The proposed USTDA assistance will fund a detailed feasibility investigation and preliminary design for a system(s) capable of accomplishing wastewater collection, treatment and disposal on the Peninsula. Alternative technical approaches will be investigated to evaluate the optimum means for managing wastewater derived from the varied sources in the study area.);*
2. Implementation of a financial arrangement with the National Water Commission (NWC) of Jamaica to secure funding through the pledging of resources for the rehabilitation of wastewater facilities (*This is also one of the projects reviewed in this Desk Study. The proposed USTDA support seeks to enhance the means by which the NWC will evaluate their existing wastewater treatment facilities and define required rehabilitations and improvements.);*
3. A zero interest loan to the National Housing Corporation of Barbados to lower the cost of wastewater treatment solutions in housing developments;
4. Support to the Water and Sewerage Authority of Trinidad and Tobago for the development of wastewater solutions for developments; and
5. A lease arrangement for wastewater treatment solutions in various locations.

The CReW will also finance a Project Development Facility window that will provide technical assistance to the project sponsors in participating countries to help bring the identified projects to a bankable status. In moving ahead with the development of the CReW, IDB is seeking assistance from USTDA for two of the above five identified pilot projects which, in this Desk Study, will be identified as: 1) the Placencia Peninsula Wastewater Management Project in Belize (Belize Project) and 2) the National Water Commission Wastewater Management Project in Jamaica (Jamaica Project).

2.2 ENVIRONMENTAL MANAGEMENT IN THE CARIBBEAN REGION

Throughout the world, developing countries are struggling with the need to improve environmental conditions and, in particular, improve the manner by which wastewater of all types is managed. This need to improve wastewater management practices is occurring at a time when populations in these countries are generally increasing and, thereby, creating added pressure on providing all forms of urban and environmental infrastructure and services. Typically, water sector emphasis in most developing countries has historically focused on the development of potable water sources and supply

infrastructure. Because of this, the development of effective wastewater management systems has lagged and considerable work remains to achieve a reasonable and sustainable level of environmental impact control. This is the case in both Belize and Jamaica where environmental conditions are extremely important because of each country's significant reliance on tourism as a key element of their economic base.

In each country (and in other countries in the region, for that matter), there are a number of impediments that prevent or impede the necessary investment in wastewater management infrastructure. The general market structure for water service provision in many of the countries in the Caribbean region is decentralized with service responsibility interspersed with local municipalities and rural communities who must often assume full responsibility for investment financing and operation of their water sector infrastructure. Accordingly, local responsibility has made the development of water sector projects generally dependent on local sources of funding which, because of the high cost of financing and the perspective of local lending institutions, prevents significant investment and development in the sector particularly in wastewater projects which are often viewed to be of less priority than water supply projects.

In addition, there are often insufficient legal and regulatory drivers or enforcement for wastewater management project implementation in developing countries. This has often fueled the perception that wastewater management investments are high risk. Generally, the impediments to sufficient wastewater investments (which can vary from country to country) include the following:

1. High capital intensity for effective wastewater management facilities and practices or necessary rehabilitations to existing treatment facilities,
2. Political pressure on the level or enhancement of tariffs and cost recovery structures,
3. Inadequate legal and regulatory framework (especially concerning enforcement of existing environmental laws and regulations at both national and regional levels)
4. A lack of access to financing at the regional and local level where responsibility may reside for implementation of water sector projects, and
5. Poor management conditions and insufficient knowledge of institutional and operational management functions and best practices thereby causing a rapid degradation of performance soon after implementation of many wastewater treatment facilities,

In addition to the above, RMA also reported in their original CReW study, that there were additional impediments of particular concern in the Caribbean region including the belief that:

1. Utilities in the region often engage in opportunistic capital planning based on the availability of funding from donors and national governments and not necessarily based on best value that focuses on economic or health benefits to be derived from wastewater management projects.
2. Utilities generally favor water supply over treatment projects for political reasons.
3. Donor countries and international development agencies have historically favored larger wastewater projects in major urban areas, and have often neglected the wastewater treatment needs of smaller countries, cities and rural areas (such as the Placencia Peninsula in Belize).
4. Limited communication and collaboration occurs between various sectors and regulatory/planning agencies which contribute to a fragmented approach to wastewater management in many countries.

5. Limited knowledge in planning, design and operation of appropriate, alternative and low-cost wastewater collection and treatment technologies which are based on sustainable and internationally accepted sound practices.
6. Wastewater sewerage (collection and transport to a single treatment or discharge location) projects often have a higher priority than the development of wastewater treatment facilities.

The development priority order for water supply and wastewater management infrastructure components in many countries is often a function of local demographics where larger cities commonly have more financial resources available to them than will rural areas that may also have wastewater management problems. (Logically, high wastewater flows from large urban areas represent a much higher scale of potential environmental impact than wastewater derived from rural or isolated sources.) This priority order is common to many developing countries. The increased availability of financial resources to larger urban areas often means that centralized wastewater management facilities are more apt to be found in the higher population areas. Most often, areas with low population density do not have the proper means of wastewater disposal or have relied on small decentralized wastewater systems.

The difficulty in effectively maintaining existing wastewater management facilities has also created an impediment to the continued development or expansion of wastewater management capacity. A wastewater facility failure due to improper maintenance or operation creates the financial perception that such projects are risky undertakings. This is not always due to ineffective staff and management. The ability to support and sustain facility operations and maintenance costs and high interest rates is often difficult for many water sector utilities and proper operation and maintenance often became expendable because of the lack of financial resources.

As a result of the above, technical and economic sustainability are important elements of the proposed pilot projects and on the institutional structure of the CReW utilization. Similarly, project technical effectiveness and sustainability are also important elements of PerformTech's evaluation of the two targeted pilot projects and their umbrella IDB CReW initiative.

The nature and physical location of the two targeted pilot projects results in two significantly different wastewater management situations that must be considered. The following presents a general description of the technical nature of each pilot project and their physical/regulatory settings.

2.2 THE PLACENCIA PENINSULA WASTEWATER MANAGEMENT PROJECT IN BELIZE

2.2.1 Development Conditions in Belize

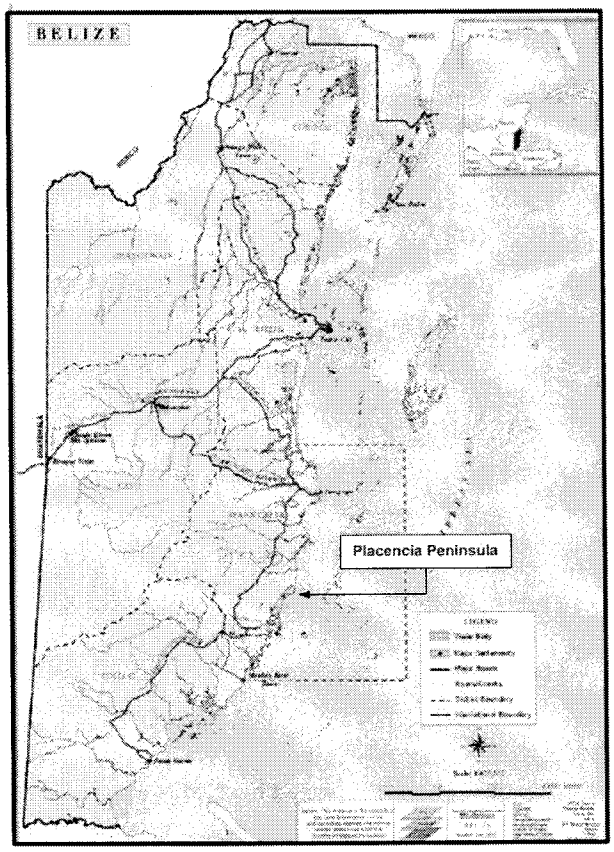
Belize is a small country (with about 22,966 km^2, it is roughly the size of the state of Massachusetts) located on the eastern shore of the Yucatan peninsula in Central America. As shown in Figure 2.1 below, it shares borders with Mexico to the north and Guatemala to the west and south and its east coast borders the Caribbean Sea. Belize has a population of about 300,000 (with an annual population growth rate of approximately 2.7%) and has one of the lowest population densities in Central America.

Belize is a sovereign, democratic state with a system of government that is based on the principles of parliamentary democracy. The country is characterized as a developing nation with a small, open economy. However, as a result of its significant natural resources and relatively small population, the socio-economic conditions in Belize are generally better than in many of the other countries in the region.

Belize has traditionally derived its economic base from harvesting timber, agriculture and fishing. However, the timber industry is largely exhausted, and agriculture has suffered from a series of strong

hurricanes and crop failures. In recent decades, Belize has capitalized on its abundant natural resources to develop an ecotourism industry. In the last ten years, tourism represented a significant portion of the Belize GDP. In some locations, such as the Placencia Peninsula, tourism has become the primary source of employment and economic gain.

The tourism industry as the largest earner of foreign exchange for the Belizean economy is an integral player in Belize's quest for socio-economic and cultural development while ensuring environmental sustainability. Mayan sites, coral reefs, rivers, caves, mountains, and cultural diversity have all facilitated the development of Belize's eco-cultural tourism industry. The country possesses the second largest barrier reef in the world and is recognized for its significant ecological and cultural diversity. Like many Central American countries, Belize is challenged with preserving its natural and cultural integrity while simultaneously supporting development to facilitate its economic growth. Tourism offerings in Belize include community-based operations where visitors experience the culture in an intimate setting, small family businesses with friendly personal encounters, moderately priced hotels, jungle lodges, luxurious urban hotels, and large resorts. Many of the larger tourism operations are owned by non-Belizeans. In recent years, a number of very large developments have been proposed with support from the Government of Belize, but with opposition from local communities. For example, the Peninsula Citizens for Sustainable Development opposed the and expensive project (the Ara Macao project) that was intended to accommodate as many as 13,000 people served by a golf course, casino, night club, and marina for 400 boats on the Placencia Peninsula. The concern about such developments has generally increased public awareness of environmental conditions in Belize because of the issues that have been raised through public discourse. On numerous occasions, some residents from the Peninsula communities (Placencia and Seine Bight) working in conjunction with organizations such as the Friends of Nature, have expressed concern about the environmental fate of the Placencia Lagoon which is extremely important to the Placencia Peninsula ecology.



As is the case with many other countries in the region, Belize's environmental challenges include the need for effective solid waste disposal, water quality improvements, and preventing deforestation. PerformTech believes that Belizeans are generally aware of the importance of water pollution because of two issues. First, it has been extensively reported in the country that their marine environment is directly affected by both solid waste and other pollution. Solid waste washes onshore, making resort areas unsightly and potentially influencing tourism income. Also, increasing nutrient content from human activities (particularly including improper wastewater disposal) affects marine ecology in specific locations such as the Placencia Lagoon which have been documented. In addition, the majority (70%) of potable water in Belize is derived from surface water sources (only 30% of which is treated). This makes

water supply sources in Belize susceptible to contamination which can contribute to the spread of waterborne disease. In 2006 public consultations concerning proposed Integrated Water Policy and Legislation for Belize, a representative of the Belizean government stated that:

> *Less than half of all Belizean households have access to adequate drinking water. Almost 50% of our population still use pit latrines, 66% of Belizean children in Southern Belize have suffered parasitic infestation and 15.4% of our Belizean children have a retarded growth rate.*

Further, in a past report on Belize's progress in meeting the Millennium Development Goals (MDGs), it was reported that:

> *Nationwide, coverage of safe drinking water stands at 92%for rural areas and 99.6% in the urban centers. Adequate sanitation service (sewer/septic tank) has lagged behind, and stood at 55% coverage countrywide in 2001. In that year adequate sanitation coverage was 68.1% for urban areas and 25.8 percent in rural communities.*

To improve existing conditions, the government of Belize has indicated that it is setting a target for 100% coverage by effective sanitation services and facilities by the year 2015. This is particularly a challenge for the one third of the population in Belize that lives in about 190 villages and communities. Currently none of these villages and communities have network-based sanitation systems. In addition, the situation is challenged by the fact that water services in the villages and communities (such as those on the Placencia Peninsula) are managed by village water boards that do not necessarily have the expertise or capacity to deal with new wastewater management services although some have developed programs for the management of solid waste.

The government of Belize has established a number of objectives that are aimed at improving water and sanitation services throughout the country. These objectives include the need to:

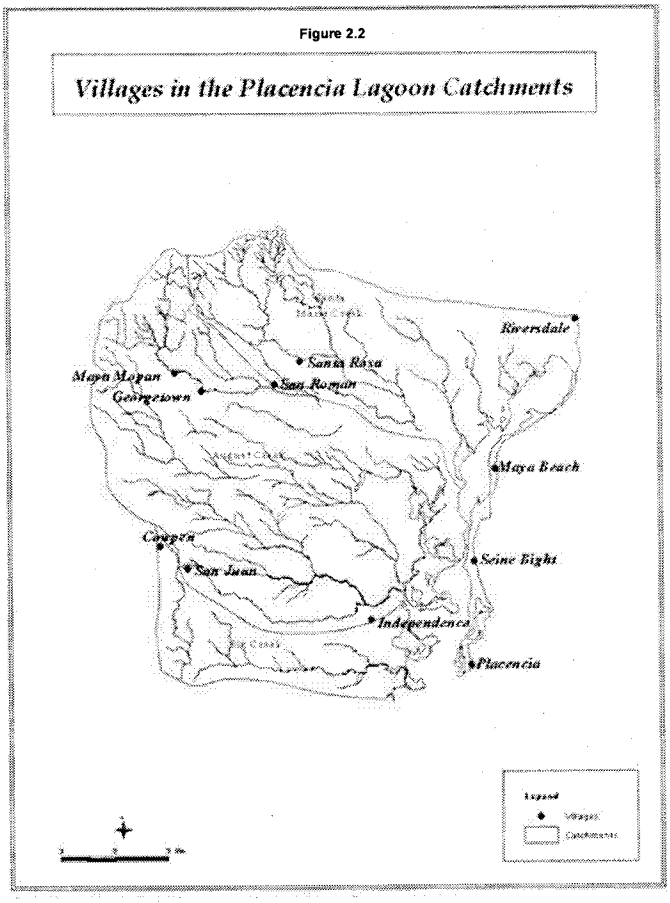
- Increase coverage of water and sanitation services
- Increase the percentage of wastewater is treated
- Achieve financial sustainability for water and sanitation service providers, and
- Improve the quality of the services and the water provided

Wastewater disposal options in Belize are significantly affected by existing geological and hydrogeological conditions in the country. Most of the northern half and much of the southern third of the country (plus the entire coastal area (including the Placencia Peninsula)) are flat and low-lying. Large sections of the coastline have a surface elevation of less than one meter above sea level to a distance of several kilometers inland. This affects the viability of conventional subsurface wastewater disposal systems because of the prevalent high groundwater levels. This is certainly the case throughout the Placencia Peninsula.

2.2.2 The Placencia Lagoon and Peninsula

There are 30 coastal lagoons distributed along the mainland coastline of Belize. Most of these lagoons remain in pristine condition. This is, most likely, due to the fact that most of them are remote and normally isolated from direct anthropogenic impacts. The Placencia Lagoon is one of the larger coastal lagoons in Belize and is currently a focal area for significant human settlement, tourism, fisheries and aquacultural development. During storm advisories, many shallow draft watercrafts (including catamarans) are moored in the Placencia Lagoon to protect them from storms.

Figure 2.2



The Placencia Lagoon has ecological and environmental significance. The lagoon has an extensive amount of plankton that makes it an ideal feeding and living location for many forms of marine life. For example, the Placencia Lagoon provides the proper ecological and environmental conditions for the endangered and threatened West Indian Manatee. The lower portion of the lagoon is relatively shallow with extensive beds of sea grass that these manatees feed on. In close proximity to the lagoon are the mouths of several mainland streams that are adequate source of freshwater for the manatees to drink. The inner portions of the Placencia Lagoon have areas that are completely protected from wind and wave activity and offer a safe and tranquil resting place for adult manatees and their calves. These prevailing natural conditions support the need to protect ecological conditions in the Placencia Lagoon from the impact of development (including the improper disposal of wastewater) on the Placencia Peninsula. It should be noted that the Placencia Peninsula is not the only land unit that contributes to the general conditions in the Placencia Lagoon. As shown in Figure 2.2 above, there is an extensive mainland area that contributes surface water flow (and potentially pollutants) to the lagoon. Within this area are located a number of communities that are also expected to have ineffective wastewater treatment systems. Table 2.1 shows the population of these various communities including the population of the principal communities on the Peninsula which will be within the proposed project study area.

Table 2.1
CHARACTERISTICS OF COMMUNITIES IN THE PLACENCIA LAGOON CATCHMENT AREA

Communities	Population	Waste Disposal Facility	Sewage Disposal	Electricity
Santa Rosa	185	None	Latrines	Yes
San Roman	351	None	Latrines	Yes
Maya Mopan	427	None	Latrines	Yes
Georgetown	763	None	Latrines	Yes
Cowpen	399	None	Latrines	Yes
San Juan	415	None	Latrines	Yes
Independence	2,881	None	Septic Tanks/Latrines	Yes
Maya Beach	?	None	Septic Tanks/Latrines	Yes
Seine Bight	831	None	Septic Tanks/Latrines	Yes
Placencia	458	Fair	Septic Tanks/Latrines	Yes
Riversdale	30	None	Latrines	Yes

Source: ESTAP 2000 and Central statistical office 2001

The Peninsula is located on the country's southeast coast (See Figure 2.1) and is the second-largest tourist destination in Belize. The Peninsula is approximately 16 miles long and 1000 feet wide with the aforementioned Placencia Lagoon on its westerly side. There are four communities on the Peninsula including Placencia village at its southern end and Seine Bight in the middle as well as the villages of Maya Beach and Riversdale. The combined population of these four villages is about 3000. Placencia village and Seine Bight have basic water distribution systems with water sourced from mainland locations. Additionally, there are individual residences, commercial establishments and beach resorts dispersed throughout the Peninsula. The Peninsula currently has about 900 hotels and guest houses offering a total of about 800 rooms.

For the most part, wastewater disposal from all existing residential sources on the Peninsula is substandard and consists primarily of direct ground disposal (latrines or soak-a-ways) from either direct house piping or septic tank outlets. The ineffectiveness of current wastewater management practices and the high pace of commercial development on the Peninsula (and their possible effect on public health and water quality in the Placencia Lagoon) are significant drivers for the need to improve wastewater management conditions on the Peninsula. As a result of the application and enforcement of national regulations, many newer developments in the country are now being provided with small-scale treatment plants. However, for most part, wastewater management conditions on the Peninsula (other than those associated with newer resort areas) are generally substandard.

In 2006, a preliminary feasibility study of wastewater collection and treatment alternatives for the Peninsula was completed by Engineers Without Borders (EWB). The intent of the work that USTDA is being asked to support includes the validation of the findings of the EWB and the development of other more detailed information required for implementation of the Placencia Peninsula Project. (It should be noted that, in reviewing the EWB report as part of the investigation associated with this Desk Study, PerformTech was concerned that the EWB recommended system was not a sustainable sound practice for effective wastewater management from wastewater sources on the Peninsula. The EWB report recommended the development of a centralized pressurized sewerage collection system that would allow wastewater transport to a mainland location for treatment and discharge. Through such a system, individual pumps would, for the most part, be required at each wastewater source (residential, commercial, etc.) PerformTech's concern is derived from the need to install a mechanical system (receiving tanks and pumps) at each residential/commercial establishment on the Peninsula.)

The IDB Placencia Peninsula Project seeks to develop and implement effective wastewater management practices and systems on the Peninsula to manage all large and small sources of wastewater. From an international sound practice perspective, this may include a combination of centralized and decentralized systems that manage wastewater based on the individual settings of generators. For example, each of the principal communities on the Peninsula could be provided with a centralized wastewater collection and treatment system while individual dispersed residences and commercial establishments in isolated locations on the Peninsula may be served by decentralized systems designed specifically for each source and its location. The proposed Terms of Reference for the Belize Project presented later in this Desk Study report will define the means by which wastewater can be effectively collected and treated in a sustainable manner from all sources to minimize its potential effect on the natural environment of the Peninsula and its adjoining Lagoon.

2.2.3 Environmental Laws and Regulations and Their Enforcement in Belize

The Government of Belize appears to be committed to the long term development of the country through sustainable and rational use of its natural resources. They also appear to recognize the need for continued development of the country to be balanced against the need to preserve the country's natural resources. This appears to be the basis for maintaining growth in the economy (and particularly in the tourism industry) while balancing the effect of this growth on the natural resources that would attract tourists to the country in the first place.

There are a number of agencies within the Government of Belize that have the authority to regulate use and protection of the nation's natural resources. This authority is based on an established legal framework. The principal legal instrument that deals with environmental protection is the Environmental Protection Act of 1992. This legislation established the Department of the Environment and gave it the responsibility and authority to protect the country's environment. Key regulations that affect environmental management in Belize and the development of the Placencia Peninsula wastewater management project include the following:

- **The Environmental Protection Act (No. 22 of 1992 as amended by Act No. 328 of revised editions 2000 and 2003).** The Belize Environmental Protection Act mandates the preservation, protection and improvement of the environment, the rational use of natural resources, and the control of pollution. This Act was enacted in 1992. Under this Act and its subsidiary regulations, a number of environmental impacts are regulated including: effluent discharge, pollution control, and the regulation of development through the use of Environmental Impact Assessment (EIA).
- **Environmental Impact Assessment Regulation No. 107 of 1995**. This regulation forms the basis for determining which projects require an EIA. Its regulations govern the type and size of developments that require an EIA, as well as stipulating the EIA process. A number of the development projects on the Placencia Peninsula have gone through the EIA process which in some cases has led to the development of wastewater management systems for the newer developments on the Peninsula.
- **Pollution Regulations of 1996.** These regulations address issues of air, water and soil pollution and deals with pollution of land that could be harmful, or potentially harmful to animals, birds, wildlife, plants or vegetation. The Department of the Environment is responsible for the enforcement of the Regulations.
- **The Public Health Act (No. 40 of 2000).** The Public Health Act authorizes the Ministry of Health and Sports to issue regulations to prevent, control, or reduce contamination of the air, soil or water, and prohibits improper disposal of medical and infectious wastes.

The above laws and regulations provide a basis for implementing the Placencia Peninsula pilot project. However, it is noteworthy that the enforcement of the regulations since their enactment has been typical of many developing countries where, due to limited available resources, there has been a lack of enforcement and the regulatory intent of the legislation has not been generally met.

2.3 THE NATIONAL WATER COMMISSION WASTEWATER PROJECT IN JAMAICA

2.3.1 Development Conditions in Jamaica

Jamaica is a Caribbean island nation covering approximately 11,000 square kilometers. The current population of Jamaica is approximately 2.4 million divided almost equally between urban (48%) and rural (52%) settings in the country. About one-fourth of the population lives in metropolitan Kingston, the capital of Jamaica. The country has had a democratically elected parliamentary system of

government since obtaining its freedom from the United Kingdom-sponsored Federation of the West Indies in 1962. Economically, tourism (which is centered on the north coast beaches of the island) is the source of more than half of Jamaica's foreign exchange earnings. Tourism combined with bauxite, and agricultural (coffee, sugar, and bananas) exports account for about 90 percent of all earnings. Jamaica's image relative to water supply, wastewater treatment, public health, and the environment in general is expected to be of major importance to the country's tourism industry.

The National Water Commission (NWC) is the primary provider of water and wastewater management services in Jamaica and collects wastewater from well over 600,000 people across the island. While there are other water service providers in Jamaica (such as Parish councils and private water companies), the NWC is, by far, the largest provider of these services. The NWC is a Jamaican statutory body that was established in 1980 as a result of the National Water Commission Act. Through this legislation, the NWC is charged with the responsibility of providing (and improving) urban and rural water supply and sanitation services. Under its wastewater management responsibilities, the NWC is responsible for the collection, treatment and disposal of urban sewerage and is empowered to make sewerage connections where it constructs, extends or operates any sewerage system. To that end, the NWC currently operates more than 1000 water supply facilities and over 100 sewerage facilities throughout the island.

Approximately 80% of Jamaica's population is currently served by NWC potable water services and 30% served by NWC wastewater management infrastructure and facilities in major towns or associated with several housing developments in various locations throughout the country. In recent years, the NWC has sought to increase its service coverage and to rehabilitate or improve the effectiveness of its existing wastewater management infrastructure. This has included the evaluation and implementation of upgrades and rehabilitations to its wastewater treatment facilities. This wastewater treatment facility initiative is the basis for the IDB pilot project in Jamaica and which is the focus for the assistance that the IDB is requesting from USTDA. The IDB pilot project seeks to assist the NWC in evaluating their current wastewater treatment facilities and implementing upgrades or rehabilitations that are required to renew their design performance intent and meet current environmental regulations.

2.3.2 Environmental Laws and Regulations and Their Enforcement in Jamaica

The Government of Jamaica has established a National Water Policy which affects both water supply and wastewater management in the country. The objective of the policy is to enable a number of action tasks that are intended to have an impact on national growth and development. Key objectives of the National Water Policy include:

1. Enabling all Jamaican households access to safe drinking water and good sanitation, access to be ensured and satisfied through a combination of household connections to piped water; water shops; wayside tanks and loading bays; community catchment tanks; stand pipes; trucking; and rainwater harvesting.
2. Development of the national and sub-national water and sanitation sector, including rural water services expansion; promoting water conservation and demand-side management as means to reduce the demand for water; reducing unaccounted-for-water and leaks through metering and replacement of water mains; overhauling the billing system to increase revenue and enable expansion of the service; and encouraging and facilitating private sector participation.
3. Improving the efficiency of the National Water Commission to enable lower service provision costs; greater availability of water; greater NWC profitability for expansion of the water supply and enhanced customer service.

4. Expanding central sewage facilities in all major towns.
5. Rehabilitating existing water sector systems in keeping with national and international environmental standards.
6. Introducing cost recovery mechanisms to ensure that the direct beneficiary of water and wastewater services pays and that the supply of services is maintained and enhanced.

The objective of the IDB CReW project is consistent with the general intent of the Jamaica National Water Policy.

In addition, a number of laws and regulations exist that are relevant to the wastewater management intent of the IDB Project. In Jamaica, there are at least fifty existing statutes which relate in one way or another to environmental management and protection. With regards to wastewater management, the most important of these are:

- **The Public Health Act 1974, amended in 1985** - The Public Health Act approaches the issue from the perspective of health while the NRCA Act (shown below) focuses on the Environment.
- **The National Water Commission Act, 1963, amended in 1965, 1973 and 1980** - The National Water Commission Act of 1980 places the responsibility for public water supply systems and public sewerage and sewage treatment on the NWC.
- **The National Resources Conservation Authority (NRCA) Act, 1991** - The NRCA Act has significant powers related to the management of the environment, and specifically for the regulation of effluent discharges. The NRCA Act governs the effective management of the physical environment of Jamaica and provides:
    1. For a regulatory power to set qualitative standards for water and the control of discharges of wastewater into waters or on and into the ground.
    2. That it is an offense to discharge on or cause or permit the entry into waters or into the ground of sewage or trade effluent including the discharge of any poisonous, noxious or polluting matter except under and in accordance with a license granted under the act.
    3. For the establishment of the National Resources Conservation Authority to develop, implement and monitor plans and programs relating to the management of the environment and formulate standards and codes of practice for the improvement and maintenance of the quality of the environment.

As is the case in many other developing countries, the enforcement of these regulations has generally not lived up to the intent of their passage. In the case of wastewater management facilities, the historical application of the regulations has not led to significant monitoring of wastewater treatment plant function and performance to a point where the design intent of the facilities has not been sustained. As a result, many of the existing wastewater treatment facilities in Jamaica are in need of improvement or rehabilitation to function properly. This is the technical and institutional basis for the IDB Pilot Project Jamaica component.

2.3.3 Wastewater Management Facilities in Jamaica

There are presently more than 90 sewage treatment plants in Jamaica, with the majority (61) owned by the NWC. Plant capacities under the jurisdiction of the NWC range from 0.05 to 52.8 million liters per day (MLD) with about 90% of plants with capacities of less than 2.65 MLD. There are a variety of treatment technologies used in these facilities including contact stabilization, oxidation ditches,

extended aeration, aerated lagoons and stabilization ponds. In addition to the NWC facilities, there are a number of other sewage treatment plants that are owned by hotels, corporations and public housing development agencies. These plants (particularly those that are owned by the hotels) are principally mechanical packaged treatment plant technologies.

The sewage treatment plants in Jamaica are currently regulated by National Environment and Planning Agency (NEPA) under the aforementioned National Resource Conservation Act of 1991 and its revision of 1996. Through this legislation, NEPA is charged with monitoring the environmental performance of the wastewater treatment systems. In 2002, NEPA, through a project funded by USAID and Government of Jamaica, commissioned a study by the Jamaican Waste Research Management and Training Centre of the Scientific Research Council concerning the performance of the domestic wastewater sector. The results of this study noted the prevalent poor performance at many of the existing wastewater treatment facilities with low levels of compliance with the Jamaica's wastewater effluent standards. NEPA's ongoing monitoring programs have also demonstrated that poor operating practices and inadequate maintenance at sewage treatment plants appear to be common. In addition to the above assessment, The Jamaica Wastewater Operators Association (JWOA) also produced a status report on Jamaican wastewater treatment plants in 2003. The JWOA study presented similar findings to that reported in the NEPA study. The JWOA study looked at 14 different plants throughout Jamaica and identified a number of operational and maintenance issues including the following:

- **Age and type** - Most of the plants in Jamaica are old (up to 30 years) with some exceeding their expected service life. Coupled with this is the fact that most of the plants have mechanical components such as pumps and the equipment used for aerobic treatment processes. These older plants are subjected to frequent breakdowns and repairs are necessary to sustain plant performance and meet their design intent.
- **Monitoring** - The owners/operators of most treatment plants that were observed do not conduct any form of programmed monitoring in order to assess the ongoing performance of their plants. Effluent quality for most plants is only known when specific compliance monitoring by NEPA is undertaken or when special studies are done.
- **Overloading** – Many of the treatment plants are being overloaded from a hydraulic standpoint. This usually occurs in urban locations when the population has increased and new housing projects have been connected to the plants without a complimentary increase in their treatment capacity.
- **Staffing** - Most plants are staffed by operators who lack the necessary technical skills and capacity. Many plants are simply being run mechanically but are not operating properly to meet design intent. During the JWOA study, it was determined that there were some plants that were in fairly good working condition but were producing poor quality effluent most likely as a result of poor operations and maintenance.
- **Operation and Maintenance Procedures** - Most sites that were inspected in the JWOA study did not have documented operation and maintenance procedures. Some operators were working based on what they were told and their own experience rather than from detailed written procedures aimed at optimizing the longevity and performance of the facility and its systems.
- **Equipment** - Key equipment for the proper function of a significant number of the observed plants was either missing or not functioning properly. This is particularly the case for the various pumps and motors used at the plants.

PerformTech believes that the above studies present an accurate representation of conditions that may still currently exist at many of the NWC treatment facilities. These deficiencies form the basis for the Terms of Reference aimed at assisting the NWC in evaluating its treatment facilities and implementing upgrades and improvements.

In a recent May 22, 2009 media release, NEPA emphasized its increased enforcement activities against operators of sewage treatment plants who violate the standards set by the NRCA. According to Peter Knight (the Acting Chief Executive Officer at NEPA at the time), this is one of several initiatives which NEPA will implement to maximize compliance levels across Jamaica. NEPA plans to revive the Jamaica Wastewater Operators Association, which Mr. Knight said will act as an oversight and lobby group and would allow NEPA the opportunity to register and or license wastewater treatment operators across Jamaica. The revival of the JWOA will also accompany the development of Wastewater and Sludge Regulations which are currently in draft form. In the media release, Mr. Knight stated that these regulations will set stringent standards by which operators and owners of industrial and municipal sewage treatment facilities are bound to abide. These activities are consistent with actions that were planned under Jamaica's National Environmental Action Plan. In their 2007 status report, NEPA identified the following key action task:

> *Action # 3.30 - The NWC will embark on a three (3) year sewage rehabilitation, operation & maintenance programme to enable existing sewage treatment systems to function at the level to which they were originally designed. The rehabilitation plan will be monitored by NEPA.*

Clearly, the intent of the IDB Pilot Project Jamaica Component supports the Government of Jamaica's policies and programs for improving the function of its wastewater treatment facilities as defined by this Action Task.

Current Wastewater Treatment Plant Rehabilitation Initiatives - A number of wastewater treatment plants have already been identified for evaluation and refurbishment by the NWC. This includes the construction of a new treatment facility at Twickenham Park. At this location, NWC (in conjunction with the National Housing Trust) is constructing a new waste water treatment plant to replace the existing one, which is to be decommissioned and retired. The estimated cost for this facility is $210JM.

In addition, NWC has grouped wastewater facilities that are considered a high priority for rehabilitation as "immediate" projects. These are wastewater plants for which work (including designs) is expected to commence before March 31, 2010 and which are to be refurbished or retired. This grouping is largely based on the condition of the plants and on the extent of their impact on the environment and public health. Table 1.1 identifies the plants that are currently grouped in this "immediate" category. (It is expected that the three wastewater treatment facilities that will be evaluated under the Jamaican pilot project Terms of Reference which is proposed to be supported by USTDA will be selected from this list of immediate projects.)

Detailed inspections will be conducted on the state of these plants and the information obtained from these investigations will be used to define the scope of work required to restore these plants to at least their design performance levels. Highlights of some of the key projects are presented in the listing follow:

Table 1.1
NATIONAL WATER COMMISSION
Immediate Wastewater Rehabilitation Projects[1]

No.	Location/Parish	Project/WWTP	Type of Treatment Technology	Capacity	Budget[2]	
				MGD	$JM	$USM
1	St. James	Cornwall Courts	Contact Stabilization	0.33	353	4.0
2	St. Thomas	Yallahs Pond	Waste Stabilization Pond	0.06	50	0.6
3	Clarendon	Longville	Oxidation Ditch	0.60	20	0.2
4	Clarendon	Paisley Pen	Oxidation Ditch	0.04	20	0.2
5	KSA	Harbourview	Contact Stabilization	1.00	800	9.0
6	St. Catherine	De La Vega City	Waste Stabilization Pond	0.35	25	0.3
7	Westmoreland	Negril Ponds	Waste Stabilization Pond	4.00	414	4.7
8	KSA	Elleston Flats	Contact Stabilization	0.24	44	0.5
9	St. Catherine	Eltham Park	Oxidation Ditch	0.99	85	1.0
10	St. Catherine	Ensom City	Extended Aeration	0.84	6	0.1
11	KSA	Barbican Mews	Extended Aeration	0.58	30	0.3
12	KSA	Western Sewage Works	Contact Stabilization	2.50	34	0.4
13	KSA	College Green	Oxidation Ditch	0.58	42	0.5
				TOTAL	**1923**	**21.6**

Notes

1 Source: National Water Commission K-Factor Programme Progress Report - June 2009

2 Jamaican dollar to U.S. dollar at $89J to $1US

1. **Yallahs Ponds** - The land on which this wastewater treatment plant is located was extensively scoured and the facility was completely destroyed. It is necessary to obtain an alternative parcel of land to reconstruct a replacement wastewater treatment facility. No land is immediately available to facilitate the reconstruction and NWC will continue in its efforts to identify a suitable piece of land for this purpose

2. **Barbican Mews** - Designs for the construction of 1km of 300mm trunk sewer in this location have been prepared. This would enable the retirement of the Barbican Mews Wastewater Treatment Plant.

3. **Western Sewage Works (Industrial Terrace Sewerage)** - Wastewater flows from Tivoli and its immediate environs are received at the Western Wastewater Treatment Plant. In order to divert these flows to the Greenwich transfer facility for onward flow to the new Soapberry treatment facility, it will be necessary to install some 0.5km of 300mm piping. The estimated cost of the work is $34JM.

4. **Harbour View** - Proposals were received from bidders to replace the Harbour View Wastewater Treatment Plant on a build-own-transfer basis (BOOT). Negotiations are being conducted with the first ranked bidder with a view to conclude a wastewater treatment agreement in the near future. The construction cost is approximately $800JM. Under the BOOT arrangement, it is the intention of the NWC that the successful bidder will arrange financing for the construction.

5. **De La Vega City** - Operational deficiencies at the De La Vega Wastewater Treatment Plant will be addressed in two stages. 1) Emergency work – to re-establish the influent trunk sewer that spans the Rio Cobre River; work has already commenced on this activity and 2) Negril Ponds – Westmoreland Sections of the Negril Ponds are in need of rehabilitative work

to restore them to condition that would provide acceptable performance. The estimated cost for the works is $414JM.

6. **Cornwall Courts Wastewater Treatment Plant** - Some 188 lengths of sewer pipes and fittings were purchased for this project at a cost of $ 41.59JM. Design for the installation of some 5km of 500, 400 & 350mm diameter trunk sewer from Cornwall Court to the existing Montego Bay sewerage facilities was completed. Tenders were invited and a contractor selected to undertake the work. This trunk sewer will allow the Cornwall Court wastewater treatment plant to be retired from service.
7. **Paisley Pen Sewage Treatment Plant** - Rehabilitation of this wastewater treatment plant is underway. Estimated project cost is $20JM.
8. **Longville Treatment Plant** - Rehabilitation/Ugrading works – Repairs to the stabilization pond and upgrading of the plant's pump station will be undertaken. The estimated cost is $25JM. This is a new facility with only minor work needed to maintain its operational integrity. This work will include repair of one of its clarifiers. The estimated project cost of this project is $20JM.
9. **College Green** - This plant will be retired after a trunk sewer is extended. Design for this trunk sewer has been prepared and a contractor has been selected to carry out the work. The overall cost for the project including engineering is $42JM. The project involves the installation of 1,081m of 300mm diameter sewer pipes.
10. **Elletson Flats** - A comprehensive rehabilitation of this facility is required. In addition to the minimal work that has already commenced, it is planned to engage the services of a wastewater expert to detail the scope of the rehabilitation work that is required to restore this facility to its design operational level.
11. **Eltham Park Sewage Treatment Plant** - Initial work will involve repairing two screw lift pumps and the provision of gear drives for rotors. The NEPA permit for the upgrade of the Facility was received by the NWC. Subsequent to granting the NEPA permit, additional flows have been directed to the plant.
12. **Ensom City** - Work continues on the rehabilitation of the Ensom City Wastewater Treatment Plant, which will involve the replacement of pumping equipment; refurbishing the plant's digester, clarifier and sludge waste system; and replacement of the aspirator.

2.4 DESK STUDY APPROACH

In undertaking its project review due diligence, USTDA commissioned a Desk Study to evaluate the project and determine whether the Belize and Jamaica Projects, as proposed by the IDB, will meet USTDA's funding objectives and achieve substantial benefits in the host countries. Performance Technology, Inc. (PerformTech) was selected to perform the Desk Study and this report is a result of PerformTech's work. The approach taken in accomplishing the Desk Study included the following activities:

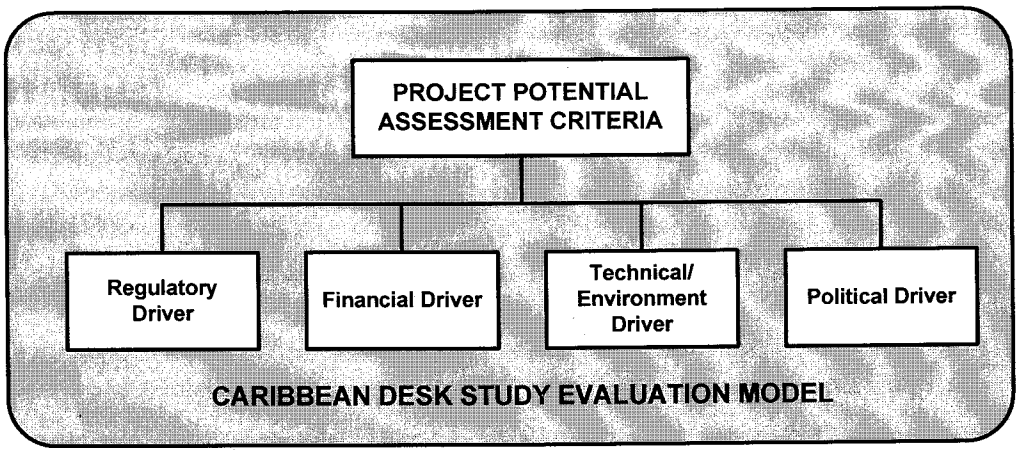
1. Written material provided by USTDA and the IDB was reviewed to define the technical and institutional characteristics of the proposed projects.
2. PerformTech met with IDB staff in their Washington D.C. office to discuss the project and review initial questions that PerformTech had concerning their proposal to USTDA.

3. An extensive internet data search was undertaken to find additional background on the projects and conditions in the countries where the proposed pilot projects are located.
4. Upon determining that the projects potentially had merit, PerformTech prepared draft Terms of Reference and consultant budgets for the work that would result from USTDA's support. Given the diverse nature of each of the pilot projects, PerformTech elected to prepare individual TORs for each project.
5. The draft TORs and consultant budgets were then submitted to the IDB for their review and ratification prior to completion of this Desk Study report. (The TORs for the Belizean and Jamaican components of the IDB project are shown in Annex 1 and 2, respectively. A copy of IDB's concurrence letter concerning the TORs and budgets is presented in Annex 3.)
6. Based on the results of their investigation, recommendations concerning the IDB's proposal to USTDA were made by PerformTech based on the findings documented in this Desk Study report. These findings and recommendations are presented in Section 14 of this report.

This Desk Study is intended to assess the technical, economic, development and financial merits of the IDB pilot projects and the elements that IDB is seeking USTDA support for. In particular, PerformTech's Desk Study evaluation is intended to help determine whether the proposed projects comply with prerequisite USTDA development and assistance criteria. To accomplish this, the Desk Study evaluates whether the identified Project initiatives will:

- Help improve environmental and wastewater management service and infrastructure conditions in Belize and Jamaica and, through possible replication, in other countries in the Caribbean region;
- Be technically, financially and economically sound and based on commonly accepted best practices and sustainable approaches;
- Be a development priority for the Governments of Belize and Jamaica;
- Stimulate a meaningful level of exports of environmental equipment, technology and services from the United States to the region; and
- Enhance the implementation process of the identified projects as a result of USTDA participation through full or partial funding.

PerformTech's Premise for Evaluating Projects - The development potential of any project in any country can be defined by the quality and sufficiency of its implementation drivers. This project driver concept is based on the premise that the implementation of any publicly developed project is influenced by a number of factors that **drive** the project to completion. This is particularly the case in developing countries where significant needs in many sectors must compete for limited financial resources or where there is a strong and continuing reliance on financial resources provided by outside donors and funding agencies. The IDB Project support request encompasses a unique consideration when project drivers are considered. While the technical merits of the Belize and Jamaica pilot project components are important, the financial aspects of the CReW initiative significantly affect the role of typical project drivers. The IDB's willingness to support alternative financing approaches provides a strong incentive on the part of the Governments of Belize and Jamaica to participate and implement the projects since the IDB's involvement assures a means for financing the identified projects at a reasonable cost. However, the Governments of Belize and Jamaica must still be prepared to undertake the results of the IDB pilot projects which provide some validation for further investigation of the project drivers.



The primary development drivers that are applicable to environmental projects (which certainly include wastewater management projects such as those evaluated in this Desk Study) are illustrated in the graphic above. PerformTech believes that effective and sufficient development drivers keep a project moving forward and allow it to remain in a priority position throughout its development process while competing for the necessary (financial, personnel, etc.) resources required for full implementation. Project development drivers applicable to the wastewater projects evaluated through this Desk Study include the following:

- The **regulatory driver** recognizes that sufficient environmental legislation and regulatory enforcement must exist or, at a minimum, be under development to support (or even mandate) the implementation of the project. Additionally, the regulatory driver recognizes that having laws and regulations by themselves do not necessarily mean that the driver is sufficient. Laws and regulations must be accompanied by the appropriate means (and political will) to effectively enforce them. The lack of enforcement is often a common deficiency in many developing countries and is an impediment to project development especially if that development is dependent on increasing cost coverage by service customers.
- The **financial driver** recognizes that a project will only be developed if there is a means for financing it once it has been properly technically and institutionally defined (through feasibility studies, etc.) and designed. In many cases, this may mean that the project implementation is a function of the willingness of the Governments of Belize and Jamaica and financing agencies (such as the IDB) to undertake projects in a particular sector.
- The **technical/environmental driver** recognizes that the project must be technically viable and reasonable alternatives must be available to accomplish a desired objective (such as the improvement of wastewater management service delivery and conditions) in an effective and sustainable manner. In an environmental initiative, the project must be clearly technically feasible to accomplish the desired environmental result.
- The **political driver** recognizes that the project must be a high priority for political leadership who have decision-making powers pertaining to the manner in which the project is financed, funds allocated for its development, or permits/approvals issued through a regulatory process. Political support is crucial to project implementation.

PerformTech's perception of the impact of the above standard drivers on the IDB project components is presented as a basis for the recommendations found in Section 14 of this Desk Study report.

7.

3
PROJECT SPONSOR'S CAPABILITIES AND COMMITMENT

The success of any project is a function of the capabilities and commitment of the project sponsor. The nature of the CReW initiative and the typical role of the IDB in financing and supporting all forms of infrastructure in the Caribbean region bode well for the necessary capabilities and commitment to successfully implement the pilot project components in Jamaica and Belize.

3.1 THE INTER-AMERICAN DEVELOPMENT BANK

The Inter-American Development Bank, which was formally created in 1959, is the main provider of multilateral development financing for Latin America and the Caribbean. The IDB fosters sustainable economic and social development and poverty reduction in its borrowing countries through a myriad of lending and non-lending activities.

The IDB is owned by 48 member countries which include 26 borrowing members in Latin America and the Caribbean and 22 non-borrowing members which include the United States. Each IDB member country subscribes to shares of ordinary capital and has voting authority through the IDB's Board of Governors according to its capital subscriptions. Under the terms of the IDB Charter, the countries that receive IDB financing hold a majority of its shares.

Since the IDB was founded in 1959, the Bank has approved loans and guarantees totaling about $169 billion. The total active portfolio of loan projects numbers more than 620. In addition to financing projects in the public sector, the IDB provides financing to private companies in several sectors such as infrastructure, capital markets, and trade finance. IDB financing is conducted directly or through financial institutions.

The IDB is headed by a Board of Governors who delegates oversight of Bank operations to the Board of Executive Directors. Day-to-day operations are conducted by the Bank's management team, led by the IDB President, who is the Bank's chief executive officer. The President manages the ordinary business of the Bank, assisted by an Executive Vice President and four Vice Presidents for Countries, Sectors and Knowledge, Private Sector and Non-Sovereign Guaranteed Operations, and Finance and Administration. In 2007, a new organizational structure was approved for the IDB which represented a major overhaul and emphasized the IDB's intent to connect with new clients and put more personnel into its Country Offices. Currently, the IDB has 1,815 employees working at its headquarters in Washington, D.C., and Country Offices in all 26 borrowing countries, plus non-regional offices in Tokyo and Paris.

In their ongoing development of the CreW pilot projects, IDB has had a number of meetings with government officials and stakeholders in both Jamaica and Belize to explore the structure of the proposed pilot projects and to secure the commitment of the government's to participate.

PerformTech believes that, given the extensive experience of the IDB in developing all types of projects throughout the Caribbean region, the project sponsors are sufficiently committed and capable to

achieve the desired results of the pilot projects. In particular, their ability to manage the financial aspects of technical projects is clearly demonstrated through their past development successes in the Caribbean region. In addition, as a major development bank, IDB is well aware of factors that establish successful transactions and sustainability in all forms of projects including public sector environmental projects. This will help to assure successful definition and implementation of the technical aspects of the pilot projects which will form the basis for initial U.S. service and technology exports.

One aspect of implementation capacity that will need to be explored during the feasibility analysis is the local capacity for operating and maintaining any constructed wastewater infrastructure on Placencia Peninsula. Currently, the local water board on the peninsula is not involved in providing any wastewater management services and the issue of technical support will need to be addressed. IDB recognizes this fact and has acknowledged that this is an issue that must be dealt with in project planning.

3.2 THE BELIZE MINISTRY OF FINANCE

The Belize Ministry of Finance advises on, coordinates and implements the Government of Belize's economic and fiscal policies and programs including the generation and allocation financial resources to provide appropriate public services and to contribute to the overall development of Belize. The Ministry of Finance is charged with among others:

1. Advising on the formulation and execution of financial policy
2. Budget preparation, control and review
3. Fiscal management
4. Public debt servicing
5. Insurance and banking

With the close support of the IDB, the Belize Ministry of Finance will serve as the public sponsor for any USTDA assistance resulting from this project. Belize Water Services Ltd. Will serve as the technical partner to the project.

3.3 THE NATIONAL WATER COMMISSION IN JAMAICA

As described in Section 2 of this Report, the National Water Commission is a statutory organization charged with the responsibility of providing potable water and wastewater services for the people of Jamaica. Through their ongoing management of the extensive water supply and sewerage system in Jamaica, the NWC has demonstrated their ability to participate in the study for which USTDA assistance is sought. With the close support of the IDB, the NWC will serve as the public sponsor for any USTDA assistance resulting from this project.

4
IMPLEMENTATION FINANCING

4.1 THE FINANCIAL NATURE OF THE PILOT PROJECTS

One of the main issues normally associated with water sector projects that are considered for support funding from USTDA is defining the means by which a project will be financed. The difficulty in achieving environmental project financing is often an impediment to actually implementing evaluated projects irrespective of the quality of its technical evaluation and development. However, the IDB, as a key development bank for the Caribbean region, has the ability to inherently accomplish the required financing with the necessary support of the implementing entities and governmental agencies in each country. This eliminates a significant portion of the concern that may exist in defining the manner by which an evaluated project will be financed.

4.2 FINANCING CONDITIONS IN BELIZE AND JAMAICA

Belize - Belize's financial system is small. It is limited to five domestic commercial banks (with the largest bank holding about $448.8 million in assets), eight international banks, a mutual fund (unit trust), thirteen credit unions, and seventeen insurance companies nationwide. The Central Bank of Belize regulates the liquidity and cash reserve requirements and monitors interest rates of the commercial banks. Currently, interest rates in Belize are relatively high and the current prime lending rates of local banks are high with average personal lending rates at about 16.0% and commercial lending rates at 13.7% at the end of September 2008.

In addition to the IDB, other international development agencies such as the World Bank and the Caribbean Development Bank provide funds for development projects in Belize. Their projects have generally been aimed at alleviating poverty and improving public health, education, tourism, and roads. OPIC and the Export-Import Bank of the United States also offer limited financing for American business ventures in Belize and U.S. equipment sales.

In its April 2009 Article IV Consultation report, the International Monetary Fund (IMF) reported the following concerning recent developments and outlooks for the Belize economy:

> *Belize's economic performance in 2008 was broadly favorable. Despite losses from two tropical storms, real GDP grew by 3 percent. So far, the impact of the global downturn has been small. Real GDP growth is projected at 1 percent in 2009, as the impact of the global slowdown is expected to be partly offset by a recovery in agriculture and an expansion of the energy sector.*

In addition, the IMF reported that in 2008 and 2009, the IDB, CDB and the World Bank approved loan programs totaling US$45 million in addition to flood related assistance. In mid-2008, Belize also received a US$50 million line of credit from Taiwan, Province of China.

Jamaica - The IDB is the largest contributor of multilateral financial assistance in Jamaica. Currently, the IDB is involved in a number of initiatives in Jamaica including working to establish a National Solid Waste Management Authority and system for Jamaica, assisting the Ministry of Health to identify and design

new tools for controlling the spread of HIV/AIDS, and funding a number of projects related to agricultural services, poverty alleviation, security and justice, primary education, parish infrastructure development, and social infrastructure, as well as direct budget support.

Other multilateral lenders and donors active in Jamaica include the World Bank (education, poverty eradication, public sector and financial reform, and export development); the European Union (poverty alleviation and infrastructure development); the Caribbean Development Bank (fiscal reform, poverty alleviation, institutional strengthening, tourism, infrastructure development, and agricultural development); and the United Nations Development Program (sustainable job growth and promotion of innovative and competitive export opportunities). Major bilateral donors include the United Kingdom (education, poverty reduction, good governance, and a debt relief facility); Canada (economic competitiveness, environmental management, governance, poverty alleviation, and early childhood education); and Japan (infrastructural and cultural projects).

In recent evaluations of the economic situation in Jamaica, the IMF has observed the following:

> *Jamaica has been strongly impacted by the global economic slowdown. Real GDP declined by 1.6 percent in Fiscal Year (FY) 2008/09 (April 1-March 31), with economic conditions deteriorating sharply in the second half of the year. During the current fiscal year, real GDP contracted further, registering a decline of 3 percent during the first half of the year.*
>
> *Bauxite and alumina production and exports fell by about 60 percent, while remittances—a traditional source of balance of payments support—suffered a sharp decline. Tourism has also been negatively affected, although it has proven to be far more resilient than in the rest of the Caribbean.*
>
> *In FY2009/10, the external current account deficit is expected to narrow from 18 percent of GDP to 9.5 percent, as the contraction in imports exceeds by far that of exports. Inflation fell steadily from 26.5 percent in August 2008 to 9 percent in November 2009, reflecting weak domestic demand and a decline in global commodity prices from their mid-2008 peaks.*
>
> *Government finances have deteriorated, constraining the authorities' ability to respond to the global shock with countercyclical policies. The public sector deficit is projected to reach almost 13 percent of GDP in FY 2009/10. The interest bill rose by 38 percent, reflecting the effects of the depreciation and a steep rise in interest rates. The deficit of public entities remained large, at close to 3 percent of GDP. As a result of these combined shocks, concerns about economic prospects and the sustainability of Jamaica's debt have placed significant pressure on the currency over the past year and a half.*

As a result, the IMF Executive recently approved a 27 month stand-By arrangement with Jamaica in the about of US$ 1.27 billion to support the country's economic reforms and help it cope with the consequences of the global economic downturn. This has led to an upgrading of the country's short term foreign currency and ceiling rating to "B". This should have a favorable impact on the ability to finance the environmental projects resulting from the pilot initiative.

4.3 United States Export-Import Bank in Belize and Jamaica

The U.S. Export/Import (EXIM) Bank is an independent U.S. Government agency which assists in financing overseas sales of U.S. goods and services. EXIM Bank has several different programs available to support the export of environmentally beneficial goods and services. Under its normal environmental financing program, EXIM Bank offers short, medium and long-term support for transactions with the private sector, and short and medium-term support for public buyers. Capital equipment supported by EXIM Bank's medium term loans or guarantees may have up to a seven year term or a maximum funding limit of $10 million. Long-term loans of up to ten years are also available for private sector borrowers.

EXIM Bank is fully open for private and public sector projects in Belize and Jamaica. EXIM Bank's medium-term loans, guarantees and insurance support exports of capital equipment. Private sector buyers can also use EXIM Bank long-term loans and guarantees to commercial banks. Some U.S. commercial banks provide EXIM Bank guaranteed financing to foreign buyers and are becoming more active in the Caribbean region.

Public sector borrowers must have the national government's guarantee on their transactions. Private sector borrowers may need an acceptable financial institution to act as either a guarantor or obligor on the loan. (The necessity of third party guarantee obligors depends on the creditworthiness of the private obligor.)

Short-term sales to Belize and Jamaica can also be supported under EXIM Bank's Credit Guarantee Facility (CGF) program. Under this program, a CGF medium-term line of credit is extended by a U.S. bank to a local bank in Jamaica and Belize. The line is guaranteed by EXIM Bank. Companies wishing to purchase U.S. goods and services on credit can approach the participating Kenya bank which takes the credit risk on the local company. Repayment on these loans is restricted to between two and five years. Under this program the buyer must make a 15% cash payment to the exporter outside of the CGF.

In conjunction with the environmental exports program, EXIM Bank also has limited recourse project finance funding available if there is reasonable assurance of repayment based upon the project's cash flow. Important features of this program include an ability to finance up to 15% foreign content in the U.S. package; financing of interest accrued during the construction period; financing of host country local costs (up to 15% of the U.S. contract value); no minimum or maximum deal size; equity requirements established on a deal by deal basis; and financing for up to 10 years, depending on the size of the deal.

5
U.S. EXPORT POTENTIAL

5.1 BASIS FOR U.S. EXPORT POTENTIAL IN WASTEWATER MANAGEMENT PROJECTS

Wastewater management infrastructure can be technically divided into two core activities including the means by which wastewater is collected and the means by which it is treated prior to discharge. Conventional sewage collection systems are normally designed utilizing gravity flow through underground piping that transport wastewater from its sources to a treatment or discharge location. In some industrialized countries, under unusual circumstances alternatives wastewater collection systems utilizing pressurized or vacuum based conveyance have also been utilized.

There are a number of conventional treatment technologies that are sound practice for managing wastewater from typical residential and commercial sources in both industrialized and developing countries. Some treatment technologies utilize systems that are heavily dependent on mechanical components to achieve the treatment process. In other cases, natural biological processes such as those inherent to wastewater stabilization ponds are used to achieve the treatment intent. These treatment systems do not require the same extent of mechanical components found in some urban wastewater treatment plants (such as those that use activated sludge or extended aeration technologies). Logically, the systems that utilize extensive mechanical components would offer the best U.S. export potential since these mechanical components would typically not be manufactured in developing countries.

Under normal circumstances, PerformTech would evaluate each of the IDB pilot project technical components based on an estimate of the actual extent of materials, technology, equipment, and services that could be exported from the United States for the implementation of the technical elements of the pilot projects. While this section of the Desk Study report does estimate the specific technological exports associated with each pilot project, it is also important to note that the basis for the request to USTDA is to support IDB's CReW pilot project initiative which is to test and refine alternative and innovative financing approaches to implementing wastewater management projects in the Caribbean region. Accordingly, the full export potential that could be realized from USTDA support could extend significantly beyond the technical scope of wastewater collection and treatment on the Placencia Peninsula in Belize or the rehabilitation of a number of wastewater treatment plants in Jamaica. PerformTech believes that USTDA should consider this when evaluating their interest in responding to the IDB request.

Recently, the Caribbean Environmental Health Institute (CEHI) undertook an evaluation for the United Nations Environment Program (UNEP) to provide background information to assist in evaluating the type of financing needed to address wastewater issues in the Caribbean region. This was done in support of the creation of the CreW program which is the basis for IDB's pilot projects. In this evaluation, CEHI identified a total estimated infrastructure cost of over US$ 10 billion with estimated investments in the regional countries shown in the table. PerformTech believes that this is the ultimate economic potential of initiatives such as the IDB pilots which are intended to develop financing instruments that will lead to the development of required wastewater management infrastructure. The potential U.S. exports of equipment and services to support these projects could be up to 30% of the aggregate total.

ESTIMATED TOTAL INVESTMENT REQUIREMENTS FOR WASTEWATER MANAGEMENT IN THE CARIBBEAN REGION		
Country	**Capital Cost**	**O&M Cost**
Bahamas	$2,739,498,489	$703,349,829
Trinidad and Tobago	$2,108,582,584	$273,297,847
Haiti	$4,012,757,382	$520,101,950
Guyana	$344,815,060	$11,572,997
Belize	**$129,930,000**	**$4,364,503**
Suriname	$226,590,000	$7,611,461
Jamaica	**$1,273,321,085**	**$164,945,274**
Turks and Caicos Islands	$219,716,670	$56,411,272
St. Vincent and the Grenadines	$848,503,505	$217,848,193
St. Lucia	$1,349,399,509	$346,438,325
St. Kitts & Nevis	$421,721,055	$108,274,355
Montserrat	$8,434,421	$3,609,032
Grenada	$885,614,216	$227,368,986
Dominica	$118,081,895	$50,528,032
Cayman Islands	$357,618,713	$91,813,571
British Virgin Islands	$191,037,968	$49,046,310
Bermuda	$544,022,017	$139,669,966
Barbados	$2,304,285,329	$591,592,827
Antigua and Barbuda	$675,934,507	$173,536,462
Anguilla	$102,901,422	$26,418,492

Wastewater management projects can provide many opportunities for U.S. exports depending on the nature and technical configurations of the wastewater management projects. However, sound wastewater practice in developing countries often involved the use of natural treatment systems such as stabilization ponds and constructed wetlands, etc. that do not require extensive mechanical components.

In any event, the following presents information concerning the trade perspectives between the United States and each of the pilot project countries. A discussion of the specific export potential that could be realized through the physical development of the pilot projects as currently defined in the CReW development structure is also presented. Each of the IDB pilot projects will represent a specific export potential for U.S. supplied technologies, systems and equipment.

5.2 BELIZE PLACENCIA PENINSULA PROJECT

Traditionally, Belize has been a consumer nation which relies heavily on imports. Of the $684.4 million worth of goods that Belize imported in 2007, $231.4 million or 33.8% came from the U.S. The proximity of Belize to the United States, cultural influences, and strong transportation links between Belize and the U.S. give U.S. suppliers a distinct advantage over European and Asian exporters. This should be the case for any technologies, systems, materials or equipment that may be required for development of wastewater management infrastructure for the Placencia Peninsula.

In its 2008 Country Commercial Guide, the U.S. Commercial Service states the following market overview facts concerning project development and export/import conditions in Belize.

- Belize, the second smallest (8,867 square miles) and least populated country in Central America (2007 mid-year estimated population, 311,480), has an open, private sector-led economy based primarily on export agriculture and services. Imports in 2007 totaled $684.4 million, while total exports were only $254.0 million.
- Tourism continues to be the single largest foreign exchange earner, bringing in $275.2 million in hard currency in 2007. The tourism industry is followed, in rank order, by citrus ($53.1 million), cane sugar ($44.1 million), marine products ($32.1 million) and bananas ($19.9 million). Also of importance are the recently discovered oil reserves in the Spanish Lookout area of the country. Petroleum exports totaled $71.3 million in 2007.
- The United States continues to be Belize's number one trading partner. Through August 2008, the United States provided 33.7% of all Belizean imports and accounted for 29.5% of Belize's total exports. These proportions reflected a $133.92 million U.S. trade surplus with Belize, up by 16.8% from August 2007, when the U.S. recorded a $97.5 million surplus.
- Belize has traditionally enjoyed one of the most stable political environments in the region, having held five trouble-free democratic elections since it attained independence on September 21, 1981.

The Belize Placencia Peninsula Project will, most likely, involve piping and sewage pumping stations as well as some limited mechanical components for wastewater treatment processes. In their estimate of the costs for a centralized wastewater collection and treatment system for the Peninsula, the EWB estimated a cost of $BZ 10,273,250 (about US$ 5,269,400) for a system that would collect and treat wastewater from the entire peninsula. PerformTech expects that if such a system was constructed, the materials and equipment that would be required for the EWB recommended system would be approximately 50% of the estimated capital cost (or about US$ 2,634,700). However, it is important to note that PerformTech does not believe that a centralized system based on pressurized sewer collection as recommended by the EWB is a sound practice application for wastewater collection and disposal from the Peninsula. As a result, the actual export potential for establishing effective wastewater management on the Peninsula may be significantly below the level shown above. However, it is also important to note that, while the intent of the Placencia Peninsula project is to provide an effective wastewater management system for the Peninsula, the pilot project intent of the financing approach is to provide a basis for use of the financing approach in developing similar projects in other locations in Belize and throughout the Caribbean region.

The Belize financial structure involves the establishment of a revolving fund for wastewater projects in Belize. The first project identified for financing from the revolving fund is a $10 million regional wastewater treatment facility for the Placencia Peninsula. Full build-out of this program, however, is estimated to generate at least $32 million in U.S. export potential in Belize. Repayment of Placencia loan will recapitalize the revolving fund to finance future wastewater projects in Belize. During IDB's missions to Belize for the project, a number of sites with similar characteristics as the Placencia Peninsula were identified as potential future projects with similar type of waste water infrastructure investment needs. The TDA grant for Belize will prepare the first project for financing under the revolving fund program. The IDB/CReW will also promote the revolving fund innovative financial structure with other countries in the region.

5.3 JAMAICA NWC WASTEWATER MANAGEMENT PROJECTS

The United States remains Jamaica's main trading partner, accounting for almost 40 percent of total trade. On average, Jamaica imports 45 percent and exports 30 percent of its goods from and to the U.S. Proximity, quality, and service have encouraged Jamaican businesspeople to purchase from the United

States. After a period of stagnant economic activity as a result of the world financial situation, projections are that Jamaica could have improved growth prospects in the years to come. Sectors which are projected to be good prospects for U.S. exports are building products, safety/security equipment, telecommunications equipment, drugs and pharmaceuticals, tourism-related activities, non-traditional agriculture, agribusiness, and information and communications technology.

Bilateral relations between Jamaica and the United States are good. Although the two countries occasionally disagree on specific issues (most notably relations with Cuba), Jamaica has supported many U.S. objectives in the Caribbean region. Currently, there are no major political issues that would affect the overall business climate in Jamaica or that would impede trade relation such as those that would support export from U.S. suppliers for the wastewater treatment facility rehabilitation work.

The Jamaican pilot project technical component will, most likely, involve greater export potential than the Belize component since the intent of the project is to rehabilitate or improve a number of existing wastewater treatment plants that fall under NWC's jurisdiction. The nature of the technologies that currently exist within these facilities will determine the required systems to improve or rehabilitate their performance and function. Most likely, this will involve many different forms of mechanical equipment (pumps, aerators, etc.) that will define actual U.S. export potential. As previously presented in Table 2.1 in Section 2 of this Desk Study report, the NWC estimates a total capital cost of approximately US$21.6 million for the immediate projects listed in the table. PerformTech estimates that approximately 40% (or US$ 8.6 million of this estimated capital cost could involve materials, equipment and services that would need to be imported into Jamaica to accomplish the projects. However, it is important to reiterate that the listing of "immediate" wastewater treatment facilities that must be addressed in Jamaica does not encompass all of the required rehabilitations if the NWC's intent is to be realized. Accordingly, the actual export potential to be associated with the IDB's pilot project in Jamaica could be significantly above the amount referenced above.

The Jamaica financial program will start with the National Water Commission (NWC) obtaining a $15 million loan from local commercial banks for construction of wastewater projects through a master trust indenture. Repayment of the loan will come from a special surcharge (called the K-factor) imposed on water customers pursuant to a Determination Notice issued by the Jamaican Office of Utility Regulation in 2008. This will be the first tranche of several financings by the NWC that will ultimately total approximately $300 million. Authority to finance up to $300 million and the projects to be implemented with these funds has been established pursuant to a Determination Notice issued by the Jamaican Office of Utility Regulation. The TDA grant assistance will help establish the policies and framework for the $300 million K-factor financing program. The IDB has indicated that the commercial banks with which they have been discussing the financing have also indicated a clear interest in doing a capital markets program to finance the remainder of the program, based on a successful execution of the first tranche.

Under the IDB/CReW program innovative financial structures such as the K-factor, master trust financing will be promoted throughout the Caribbean over the next few years in hopes that it will be replicated by other countries in the region.

5.4 POTENTIAL U.S. SUPPLIERS

U.S. companies are intimately involved in developing and manufacturing all facets of water supply, wastewater and pollution control technologies. Accordingly, U.S. technologies are highly appropriate for projects such as the wastewater management systems resulting from the pilot projects.

A number of trade organizations exist in the U.S. to coordinate and strengthen working alliances with environmental management system manufacturers and contractors. Annex 5 presents a partial listing of

these organizations. A partial listing of U.S. consulting firms and suppliers likely to be interested in pursuing work as part of subsequent feasibility studies is also shown in Annex 5.

In addition to the general listing of U.S. service and equipment suppliers listed in Annex 6, a number of U.S. companies have been actively seeking project in the region. The following is a listing of companies who actively participated in Caribbean Water and Wastewater Association's Annual Meeting in St. Thomas from October 4 to 10, 2009 . Their participation in this conference through presentations and/or booth sponsorship is a clear indication of their interest in pursuing work in the Caribbean region and may also be interpolated into potential interest in the specific projects that are the subject of this Desk Study.

US Companies that had booths at the conference to promote their goods and services in to express their interest in regional projects included the following:

New Water Caribbean Inc.
Robert Hacking
Chief Executive Officer
Tel: (246) 426 5008
Fax: (246) 426 9025
Email: rhacking@newwaterinc.com

AIRVAC
Phillip Nafziger
Manager, Environmental Group
Tel: (574) 223-5566
Rochester, IN

Cromaglass Corporation
P.O. Box 3215
2902 N. Reach Rd.
Williamsport, PA 17701
Telephone: (570) 326-3396
FAX: (570) 326-6426
E-Mail: mailinfo@cromaglass.com

Florida Aqua Store
Matt Whelchel
President
(561) 992-4200
Boca Raton, Florida
www.florida-aquastore.com

Seven Seas Water Corporation
Lauren Thomas
Marketing Manager
(340) 775-6607
St Thomas, U.S. Virgin Islands

General Electric Water& Process Technologies
Jennifer Watt
Regional Manager Southeast USA and Caribbean
(905) 465-3030x3241
jenn.watt@ge.com

ITT
Victor De Sousa
Sales Manager, Latin America
(469) 221-1200
Dallas Texas

Agrimond
Chris Toscas
(321) 783-7989
Cape Canaveral, Florida

Hallaton, Inc.
Michael Dorsch
Director Business Development
(410) 583-7700
Sparks, Md

In addition to the above a number of other U.S. companies participated in the above referenced conference by making technical session presentations. These included engineering consultants (Camp Dresser & McKee, Inc. - Boston, MA and Malcolm Pirnie, Inc. - White Plains, NY) as well as a legal consultant (Hawkins, Delafield & Wood – New York, NY)

6
FOREIGN COMPETITION AND MARKET ENTRY ISSUES

The potential for U.S. companies to realize exports from USTDA projects is a function of the technical nature of the projects and the extent of competition from companies from other countries. Geographically, companies from the United States will have a distinct advantage in servicing the technical components of the pilot projects over their competitors from other countries with well developed environmental infrastructure industries (such as the countries of the European Union). However, the nature of global business has decreased geographical advantages in recent decades. This is especially the case with the evolution of low-cost environmental and construction materials manufactured in countries such as India and China.

Currently, the principal trading partners for Belize (other than the United States) include Mexico, the United Kingdom, Western Europe, Central America, Canada, and the CARICOM member states. In recent years, Taiwan and Japan have emerged as new significant trading partners. (These countries would be expected to provide the competition for U.S. suppliers in providing equipment materials and services for the technical components of pilot projects.)

Jamaica's major trading partners (other than the United States) include Trinidad and Tobago, the UK, Canada, Japan, China and Venezuela. These countries would be expected to provide competition to U.S. suppliers for the materials, systems and services associated with the pilot projects.

The Caribbean Water and Wastewater Association is an organization created in 1991 to promote effective water and wastewater practices in the Caribbean region. Currently the CWWA reports 101 corporate members of this 41 are from the United States and the U.S. Virgin Islands. Other countries represented by corporate membership in the CWWA include Canada (7) and the United Kingdom (3). The companies from Canada and the U.K. are anticipated to be the main competition for U.S. companies in pursuing projects in the region.

7
DEVELOPMENT IMPACT

Past economic development and growth in Belize and Jamaica has not always considered environmental issues in planning and implementation. However, the dependence of each country on tourism as a significant part of their economic base creates some political pressure to maintain the environmental conditions that attract tourists in the first place. This inherent pressure supports the strong need for effective wastewater management in both countries. As a result, any project aimed at improving environmental conditions or achieving enhanced wastewater services (particularly in Jamaica's urban areas) will have a positive development impact through helping to create greater sustainability and management of urban growth and development potential which is expected to continue.

7.1 MILLENNIUM DEVELOPMENT GOALS

In September 2000, the Millennium Declaration was adopted by the member states of the United Nations. This declaration included a number of MDGs ranging from the eradication of extreme poverty to combating major diseases such as HIV/AIDS, malaria and other diseases. The MDGs are the world's quantified targets for addressing extreme poverty in many dimensions including income poverty, hunger, disease, lack of adequate shelter, and exclusion while promoting gender equality, education, and environmental sustainability.

The target accomplishments of the MDGs as defined by the United Nations Millennium Project are such that, if successful, by the year 2015 more than 500 million people will be lifted out of extreme poverty. Likewise, more than 300 million will no longer suffer from hunger and there will be dramatic progress in child health. Achieving the goals will also mean that 350 million fewer people will be without safe drinking water and 650 million fewer people will live without the benefits of basic sanitation services.

Significantly, the development assistance community has also recognized the importance of meeting the MDG and is supporting activities that can help various countries do so. This is especially important in Belize and Jamaica where development assistance is still a significant source of external financing. In many parts of the world, significant progress has been made in meeting the goals. Unfortunately, some developing countries have lagged behind and, in some cases, has even fallen further behind. Accordingly, the ability of both Belize and Jamaica to meet the MDGs by the year 2015 will require a concerted effort thereby fueling the optimization and development of water supply and sanitation resources.

As a result of the above considerations, PerformTech believes that any project that helps the Governments of Belize and Jamaica achieve progress towards accomplishing the MDGs will have beneficial development impact in all sectors of the countries' population and economic base.

Additionally, any wastewater management project or initiative supported by USTDA can help to mitigate some of the detrimental effects of further commercial and residential development on the Placencia Peninsula and of the past neglect and deterioration of wastewater management infrastructure in Jamaica. Environmental and water sector projects, by their nature, support sustainable development

and, for the most part, help to alleviate some of the problems that may have been created by improper development practices in the past.

7.2 USTDA DEVELOPMENT IMPACT MEASURES

The Terms of Reference developed for any studies to be funded by USTDA will include the need to define the development impact of the projects that are the subject of the study. Development impact categories typically evaluated in studies supported by USTDA include the following: 1) infrastructure, 2) market-oriented reform, 3) human capacity building, and 4) technology transfer and productivity improvement. Because of the nature of the projects considered in this desk study, three of these development impacts (infrastructure, human capacity building, and technology transfer and productivity improvement) are expected to apply. PerformTech believes based on the initial evaluation of the projects for this desk study, that each of the projects will demonstrate a positive development impact based on the aforementioned criteria. In addition, the following beneficial development impacts are expected from each of the component projects:

Jamaica Component Development Impact - This activity is expected to assist the Government of Jamaica in achieving progress toward its Millennium Development Goals, given its beneficial development impact in all segments of the country's population and economic base. Proper implementation of the TA recommendations will also produce the following results based on three of USTDA's priority development indicators:

- **Infrastructure**: Infrastructural improvements at three representative wastewater treatment facilities in Jamaica, promptly followed by needed rehabilitation, upgrades and expansions at the other ten highest priority facilities in the country and many more on from there. The country's most significant environmental problems, from the point of view of affecting the largest number of people's lives and livelihoods, are related to water. Pollution of surface and seawaters threatens human health and tourism revenues. Improperly managed sewage is the single largest source of water pollution, although industrial water pollution takes a close second.
- **Technology Transfer and Productivity Improvement**: This TA is anticipated to result in the importation of more modern technologies in aeration and membrane filtration. To the extent that the recommended rehabilitations, upgrades, and improvements in operations and maintenance are implemented, the degree of functionality of the wastewater treatment facilities will increase significantly.
- **Human Capacity Building**: The implementation of this project is expected to include operations and maintenance techniques training, which would substantially increase the capability of staff to keep wastewater facilities running over the long-term at their intended capacity levels.

Belize Component Development Impact: This activity is expected to assist the Government of Belize in improving environmental conditions within the country and achieving progress towards its Millennium Development Goals. At a minimum, the activity is expected to produce the following results based on a number of USTDA priority development indicators:

- **Infrastructure**: This activity will help to improve environmental conditions in one of Belize's principal tourism areas with the resulting impact that a precedence will exist for improving environmental conditions and other such areas within the country.
- **Technology Transfer and Productivity Improvement**: This activity will result in the importation of modern environmental control technology including wastewater collection and treatment for cluster development areas within the country. As a result, the precedents that will be created

through the project will provide the next lot working example of the manner by which wastewater can be effectively managed in specific areas of the country including other such tourist areas.

- **Human Capacity Building**: This activity is expected to provide increased human capacity building through training and operations of a wastewater management system (including collection and treatment) that will serve as a working example for other such installations throughout the country. The increased human capacity established as a result of the project can help to replicate the approach in other areas.

8
IMPACT ON THE ENVIRONMENT

8.1 THE ENVIRONMENTAL NATURE OF THE PROJECT

The development of any wastewater management project inherently has a beneficial impact on the environment. In the case of the target pilot projects currently under consideration, this potential benefit is significantly increased since the IDB CReW initiative is aimed at evaluating a prototype financing mechanism that, if successful, will have applicability in many other locations throughout the Caribbean region. This significantly amplifies the potential environmental benefits associated with the pilot projects for which USTDA support is requested.

8.2 BELIZE PLACENCIA PENINSULA WASTEWATER MANAGEMENT PROJECT

Continued commercial development on the Placencia Peninsula is based on increasing tourism pressures that require more effective wastewater management practices and infrastructure. The technical aspects of the proposed Placencia Peninsula wastewater management system is to provide new wastewater management infrastructure for the Peninsula which will provide a more effective means to manage existing wastewater sources on the Peninsula while also providing greater opportunities for sustainable development. Current wastewater management practices in the Peninsula have been categorized as substandard and the proposed pilot project will help to alleviate the negative environmental impacts of current practices. This will establish an important environmental benefit to the Peninsula and the Placencia Lagoon. However, those benefits will only be sustained if the future development of commercial interests on the Peninsula occurs in a manner that recognizes the importance of ongoing environmental control particularly in terms of sustaining the operability of newly installed infrastructure and control processes.

8.3 JAMAICA NWC WASTEWATER MANAGEMENT PROJECT

The National Water Commission is responsible for operating and maintaining a number of wastewater treatment facilities that utilized conventional treatment technologies that are commonly viewed as sound practice to international standards. However, many of these treatment facilities have reached their full life expectancy or have deteriorated to a point where their performance is not meeting design intent or regulatory limits. A number of studies of the existing wastewater treatment facilities have verified this. The intent of the Jamaica component of the IDB pilot projects is to provide assistance to the NWC to continue or accelerate their rehabilitation and renewal of the function of a number of existing wastewater treatment facilities. By its nature, this NWC effort will have a significant environmental benefits to the locales where these facilities located. In addition, the NWC is planning to continue its rehabilitation program and the financial nature of the pilot project can help to facilitate their future activities aimed at improving conditions at all of their treatment facilities.

The projects and initiatives evaluated in this Desk Study are, by their nature, intended to address a number of key wastewater management issues in Belize and Jamaica. Accordingly, PerformTech believes

that IDB pilot projects evaluated in this Desk Study can have a significant beneficial impact on the the environment and development potential of each country in the Caribbean region in general.

The overall benefit associated with the identified wastewater management projects supported by the IDB will significantly outweigh the short-term environmental effects that will be associated with construction of required infrastructure such as wastewater collection mains or pumping and/or treatment facilities. The proposed projects should not, even in the short-term, create negative environmental effects normally associated with construction of utilities assuming that the implementation of effective procedures and practices for mitigating short-term construction effects is part of the development process.

9
IMPACT ON U.S. LABOR

9.1 BASIS FOR PROJECT IMPACT ON U.S. LABOR

Increasing the level of exports to Belize or Jamaica for implementation of the environmental projects associated with the CReW will have a beneficial impact on U.S. labor by creating new opportunities for the export of materials, equipment and services for the pilot projects. Today, an extensive number of U.S. companies, from large multinational businesses to start-up manufacturers, have the products, services, and technologies that address increasingly complex environmental standards and provide proven, cost-effective, and reliable solutions to environmental problems. Environmental technology design, fabrication and manufacture are a high-wage, high-growth industries. More than 1,000,000 Americans are employed by environmental businesses nationwide. Past survey data shows that more than 80 percent of the companies involved in the environmental technology industry are small businesses.

Exports of environmental technology create high-wage U.S. jobs that will be a key source of employment expansion if American companies increasingly capitalize on international opportunities. In the past, the United States Environmental Protection Agency estimated that, for every $1 billion worth of exports, 17,000 U.S. jobs were created. PerformTech believes that this ratio still applies today in today's troubled economic climate. Extrapolating this rate of job creation to the equipment and export potential identified, PerformTech estimates the formation of approximately 45 jobs as a result of the implementation of the Belize Placencia Peninsula project (if the centralized system recommended by Engineers Without Borders were implemented) and about 146 jobs as a result of the implementation of the Jamaica National Water Commission rehabilitation or upgrade of its "immediate" wastewater treatment plants. It remains notable that both of these projects can essentially be viewed as the technical components of IDB CReW pilot projects that are aimed at evaluating and refining financial mechanisms that can be replicated on a larger scale throughout the Caribbean region for developing improved wastewater management.

In evaluating the pollution control industry in the united states, PerformTech believes that the project or the assistance that may be provided by USTDA should not cause or necessarily induce a U.S. based enterprise to relocate outside the United States nor will USTDA assistance be used to assist in the development of an export processing zone that could have an indirect negative impact on U. S. Jobs. In contrast, it is envisioned that the full implementation of the wastewater management development programs in Belize and Jamaica in light of the current development strategies and implementation plans will result in a formation of additional U.S. jobs at U.S. based enterprises capable of providing the equipment, materials and services required in the development of the evaluated and future projects. This, of course, assumes that U.S. firms pursue and are successful in securing contracts for the sale of their technologies or services in Belize and Jamaica.

10 QUALIFICATIONS

A critical aspect of the successful completion of a sound Feasibility Study or Evaluation includes the qualifications and experience of the project team that will implement the investigated project. In the subject pilot projects, the project team must be well qualified in planning, design, construction management and operation of wastewater facilities and procedures. In addition, the project team should be experienced in financial planning and execution, institutional considerations, and in the prevailing conditions within the host country.

Clearly the Inter-American Development Bank has the requisite skills and staff expertise to successfully manage the pilot projects and provide technical assistance to the agencies or entities in Belize and Jamaica that will be responsible for actually implementing the technical components. Additionally, the Ministry of Finance in Belize and the National Water Commission in Jamaica have the requisite skills and capacity to serve as the pubic sponsors for any assistance provided by USTDA. In addition to the close support to be provided by the IDB in administering the pilots, the public sponsors in Belize and Jamaica will need to rely on effective United States consultants for the studies and assistance specified in the proposed Terms of Reference presented in this Desk Study report.

In defining qualifications for establishing the sustainability of any wastewater management services and facilities developed as a result of the CReW pilot projects, consideration will need to be given to the current lack of capacity on the part of the Placencia Peninsula local water boards to manage wastewater infrastructure. Currently, the entities on the peninsula that are responsible for the services do not have the technical capacity for maintaining and sustaining a new wastewater management system. This deficiency will need to be addressed in project planning.

PerformTech recommends that the U.S. consultant team's skill set for each of the pilot projects includes a number of defined capabilities based on the specific requirements of each project. These capabilities are listed below. In addition, PerformTech has also provided a recommendation of the relative weight of each experience criterion that should be the basis by which a consultant is hired to undertake the feasibility study or evaluation project. These could serve as criteria for evaluation of consultant responses to a Request for Proposals (RFP) should USTDA decide to support the projects. The specific skill sets are also included in the Terms of Reference included in Section 12 and Annexes of this report.

Belize Placencia Peninsula Wastewater Management Project – The U.S. consultant effort for this pilot project can be viewed as a conventional technical feasibility study and preliminary design which requires a number of integrated disciplines with technical, institutional, and financial elements. The following is PerformTech's recommended skill set which includes the recommended weight that each element should have on the selection of a contractor to perform the work.

- Project management skills pertaining to the implementation and rehabilitation of wastewater treatment projects (10%)
- Regional experience in the Caribbean region and in Jamaica or in comparable emerging market economies (15%)

- Experience related to wastewater treatment plant rehabilitation, design and operation (15%)
- Experience with technologies that could be applicable for this project (15%)
- Experience with the economic evaluation and modeling of wastewater treatment projects (15%)
- Wastewater utility assessment and capabilities evaluation (15%)
- Experience with and knowledge of the procedures used by and requirements of Inter American Development Bank including, at a minimum, procurement procedures and project requirements for financing (10%)
- Working knowledge of U.S. companies who may provide services and technology for Caribbean regional wastewater sector projects. (5%)

Jamaica National Water Commission Wastewater Management Project – This project is more oriented toward technical assistance to the NWC in refining their evaluation process for review of their existing wastewater treatment infrastructure. This will include the facility management, operation and maintenance practices of the NWC which will serve as a component for determining the needs and criteria for wastewater treatment plant rehabilitation or upgrades. The following is PerformTech's recommended skill set which includes the recommended weight that each element should have on the selection of a contractor to perform the work.

- Project management skills pertaining to the implementation and rehabilitation of wastewater treatment projects (10%)
- Regional experience in the Caribbean region and in Jamaica or in comparable emerging market economies (15%)
- Experience related to wastewater treatment plant rehabilitation, design and operation (15%)
- Experience with technologies that could be applicable for this project (15%)
- Experience with the economic evaluation and modeling of wastewater treatment projects (15%)
- Wastewater utility assessment and capabilities evaluation (15%)
- Experience with and knowledge of the procedures used by and requirements of Inter American Development Bank including, at a minimum, procurement procedures and project requirements for financing (10%)
- Working knowledge of U.S. companies who may provide services and technology for Caribbean regional wastewater sector projects. (5%)

11 JUSTIFICATION

In considering any investment, USTDA must believe that there is sufficient justification for their participation. In the case of the pilot projects evaluated through this Desk Study, USTDA is being asked to provide support to specific wastewater management initiatives in Belize and Jamaica. However, this support is to be provided under the umbrella of pilot projects aimed at evaluating and testing alternative financial models developed by IDB through its CReW program. PerformTech believes that this cooperative relationship between USTDA and IDB is important and helps to achieve the principal objectives of each organization.

One of the other benefits of this potential association with the IDB is that USTDA will be providing a means for fast tracking two of the identified CReW pilot projects. Further, the pilot projects, by their nature, have a high degree of replicability to similar environmental situations in other countries in the region and the IDB can serve as a significant development agent for furthering wastewater management projects in their geographical area of interest. The end result of the CReW pilot projects is a demonstration and/or refinement of the financial approaches that are being investigated through the pilot scenarios. If successful, these financial approaches will help to stimulate further wastewater management development in the region which should be to the advantage of U.S. suppliers.

11.1 ECONOMICAL IMPLICATIONS

Both Belize and Jamaica strongly rely on tourism as an important element of their economic base. This is especially the case in a localized area such as the Placencia Peninsula in Belize where tourism is the prime economic driver. In addition, the general environmental conditions in Jamaica can be significantly impacted by the substandard function of existing wastewater treatment plants. Accordingly, a perception that environmental conditions are deteriorating can have a significant impact on tourism throughout the island. Any project that enhances the NWC's ability to evaluate and move forward with the refurbishment of its wastewater management infrastructure can have significant environmental benefits.

11.2 ENVIRONMENTAL IMPLICATIONS

Without any doubt, the main impact of inadequate wastewater management in Belize and Jamaica are those associated with pollution and degradation of each country's natural environment. In Belize, the pristine nature of the Placencia Lagoon can be significantly impacted as a result of increasing development pressure on the Peninsula if development is not supported by effective wastewater management systems.

Jamaica's largest problems, from the point of view of affecting the largest number of people's lives and livelihoods, are related to water. Pollution of surface and seawaters threatens human health and tourism revenues. Improperly managed sewage is the single largest source of water pollution, although industrial water pollution takes a close second. The effects of water pollution are to be found virtually everywhere in Jamaica:

- Almost all surface waters are contaminated to some extent, some severely.
- Pollution of ground water is evident in most parts of the island. This is significant in view of the fact that ground water provides approximately 80 % of the potable water in Jamaica, and is extensively used in industry and agriculture.
- Kingston Harbor is very severely polluted, caused principally by the discharge of untreated (or poorly treated) sewage, but also by substantial pollution carried by surface watercourses entering the harbor. The pollution from Kingston Harbor is said to be affecting most of the south coast of the island. Eutrophic conditions, leading to algal blooms and consequent fish kills, have also been reported in and around Kingston Harbor.
- As with all island countries, there is close interaction between terrestrial and marine ecosystems, and Jamaica is no exception. Some of the coral reefs have been badly affected by land based sources of pollution, as have some of the fisheries.
- Although the available data on contamination is insufficient to provide a comprehensive picture on the exact impact, there is evidence to suggest that several of the popular tourist beaches are polluted to the extent that bathing would be inadvisable.

12
TERMS OF REFERENCE

Please see Annex 5 in the RFP.

13
STUDY BUDGET

13.1 BASIS FOR PROJECT STUDY BUDGETS

Based on the TORs described in Section 12 and presented in Annex 1 and 2, budgets were prepared for consideration by USTDA for funding support. These are shown in the Table 13.1 (for the Belize project) and Table 13.2 (for the Jamaica project). Budget items are shown on each of the tables which are compatible with specific work task elements of the TORs. Unit prices shown for various budget elements are consistent with what PerformTech believes are reasonable unit rates for consultant labor and direct costs. In each case, the assumption is also made that the U.S. consultant selected for completing the TOR work will make use of local consultant subcontractors for project support. Project budgets are shown in the following pages.

Table 13.1

Belize Placencia Peninsula Wastewater Management Project

WORK TASK 1 - DATA COLLECTION AND REVIEW								
1.1 Acquire all relavant report and data	2	2	2			1	7.0	$6,480
1.2 Identify data needs	1	1	1			0.5	3.5	$3,240
1.3 Determine statutory and regulatory requirements	1	1	2				4.0	$3,840
WORK TASK 2 - POTABLE WATER SOURCE INVESTIGATION AND CHARACTERIZATION								
2.1 Define potable water sources	1	2	4		2	1	10.0	$9,280
2.2 Determine current and historical water consumption		2	2		2		6.0	$6,080
WORK TASK 3 - WASTEWATER SOURCE ANALYSIS								
3.1 Identify and evaluate wastewater generators	1	3	3		2		9.0	$9,120
3.2 Identify clustered generator areas		1	2.5	1	1		5.5	$4,880
3.3 Determine wastewater quantity to be collected and treated		0.5	1		3		4.5	$4,920
3.4 Identify collection system service areas		0.5	2	1	1		4.5	$3,960
3.5 Define wastewater treatment standards		1	2		1		4.0	$3,840
3.6 Identify required permits for wastewater treatment	1	1	2		1	3	8.0	$6,240
WORK TASK 4 - WASTEWATER COLLECTION ANALYSIS								
4.1 Evaluate soil quality conditions and permeability profile	1	1	1		1		4.0	$4,240
4.2 Define feasibility of operating a conventional sewer system	1	2	2		1		6.0	$6,080
4.3 Evaluate applicability of alternative wastewater collection systems	1	2	2		1		6.0	$6,080
WORK TASK 5 - TREATMENT TECHNOLOGIES EVALUATION								
5.1 Identify alternative wastewater treatment technologies	1	3	4		2		10.0	$9,920
5.2 Evaluate Alternative treatment technologies	1	2	3		2		8.0	$8,080
5.3 Evaluate decentralized approaches	1	2	2		2		7.0	$7,280
5.4 Identify material sources		1	1		3	1	6.0	$5,840
WORK TASK 6 - ALTERNATIVES ECONOMIC ANALYSIS								
6.1 Prepare detailed cost estimates	1	4	4		5		14.0	$14,560
6.2 Identify most favorable alternatives		2	2		2		6.0	$6,080
6.3 Make recommendations on most favorable alternative	1	1	1		2	1	6.0	$5,840
6.4 Evaluate tariff approached for full cost recovery	1	1	1			1	4.0	$3,440
6.5 Investigate project phasing		1	1		1	2	5.0	$3,840
WORK TASK 7 - CONCEPTUAL DESIGN DEVELOPMENT								
7.1 Develop technical description of selected collection and treatment alternative	1	3	5		3		12.0	$11,920
7.2 Prepare conceptual design of collection and treatment system	1	3	8	5	10	1	28.0	$23,120
7.3 Develop institutional management plan	1	2	2			1	6.0	$5,280
WORK TASK 8 - ENVIRONMENTAL IMPACT ANALYSIS								
8.1 Prepare preliminary environmental impact analysis	1	2	3		5		11.0	$11,680
8.2 Recommend procedures for environmental impact mitigation		1	1		2	1	5.0	$4,640
8.3 Prepare community consultation plan	1	1	1			1	4.0	$3,440
8.4 Prepare monitoring plan	1	1	1			1	4.0	$3,440
8.5 Propare emergency plan		1	1			1	3.0	$2,240
WORK TASK 9 - DEVELOPMENT IMPACT ANALYSIS								
9.1 Prepare development impact assessment	0.5	1	2		2		5.5	$5,640
WORK TASK 10 - IMPLEMENTATION PLAN AND SCHEDULE PREPARATION								
10.1 Identify additional work for final design and permitting		2	2		3	1	8.0	$7,680
10.2 Develop implementation plan	1	2	4	2	2	1	12.0	$9,280
10.3 Develop project schedules	1	1	2	2	1	1	8.0	$5,440
10.4 Develop budget for each component of the implementation plan	1	1	1		1		4.0	$4,240
10.5 Develop terms of reference for design of the selected approach	1	2	2			1	6.0	$5,280
WORK TASK 11 - FINANCIAL PLAN DEVELOPMENT								
11.1 Develop financing plan	1	1	1				3.0	$3,040
11.2 Identify means for optimizing US imports	1	1	1		3		6.0	$6,640
WORK TASK 12 - STUDY REPORT PREPARATION AND SUBMISSION								
12.1 Prepare intermediate report for recommended alternative	1	3	3	3	3	3	16.0	$11,520
12.2 Prepare project draft report		4	6	4	4	3	21.0	$14,960
12.3 Review draft report with client	3	3	3				9.0	$9,120
12.4 Modify as needed and finalize project report	1	2	4	1	1	3	12.0	$8,880
TOTAL LABOR DAYS	33.5	74	100.5	19	75	29.5	331.5	
Daily Rate	$1,200.00	$1,040.00	$800.00	$640.00	$1,200.00	$400.00		
SUBTOTAL LABOR COSTS	$40,200	$76,960	$80,400	$12,160	$90,000	$11,800		**$300,640**
Airfare	Trip	$1,000.00			15		$15,000	$15,000
Hotel	Day	$113.00			70		$7,910	$7,910
Meals	Day	$77.00			70		$5,390	$5,390
Auto / Travel	Day	$250.00			70		$17,500	$17,500
Copies / Prints	Lump Sum						$5,000	$5,000
Mail/Courier / Telephone / Insurance / Miscellaneous	Lump Sum						$1,000	$1,000
SUBTOTAL OTHER DIRECT COSTS							$51,800	**$51,800**
Labor Days	10	35	40	10	20	10	125	
Daily Rate	$400.00	$360.00	$240.00	$160.00	$160.00	$80.00		
SUBTOTAL LABOR COSTS	$4,000	$12,600	$9,600	$1,600	$3,200	$800		**$31,800**
TOTAL SUBCONSULTANT COSTS								**$31,800**
TOTAL COSTS (Labor and Other Direct Costs)								**$384,240**

Note: Cost estimate revised 6/23/10

Table 13.2

Jamaica National Water Commission Technical Assistance

WORK TASK 1 DATA COLLECTION AND REVIEW							
1.1 Identify and characterize three NWC wastewater treatment plants	1	1	2			4.0	$3,840
1.2 Acquire all relevant data for the three plants		1	1			2.0	$1,840
1.3 Identify data needs	1	1	1		1	4.0	$3,440
1.4 Determine existing and pending regulatory requirements		1	2			3.0	$2,640
WORK TASK 2 FACILITY AND PROJECT ASSESSMENT							
2.1 Conduct Facility Assessments	4	5	6	1		16.0	$16,000
2.2 Conduct Project Assessments	4	5	5	3		17.0	$17,600
2.3 Summary of Assessments with Recommendations	2	2	2	1	1	8.0	$7,680
WORK TASK 3 ENVIRONMENTAL IMPACT ANALYSIS							
3.1 Prepare environmental impact evaluation of three designated plants	0.5	1	2	2		5.5	$5,640
WORK TASK 4 DEVELOPMENTAL IMPACT ANALYSIS							
4.1 Prepare development impact evaluation of three designated plants	1	2	2	2	1	8.0	$7,680
WORK TASK 5 STUDY REPORT PREPARATION AND SUBMISSION							
5.1 Prepare draft report	2	5	8	5	4	24.0	$21,600
5.2 Review report with Client	2	2				4.0	$4,480
5.3 Revise report as needed	1	2	3	1	2	9.0	$7,680
TOTAL LABOR DAYS	18.5	28	34	15	9	104.5	
Daily Rate	$1,200.00	$1,040.00	$800.00	$1,200.00	$400.00		
SUBTOTAL LABOR COSTS	$22,200	$29,120	$27,200	$18,000	$3,600		**$100,120**
Airfare	Trip	$500.00		10		$5,000	$5,000
Hotel	Day	$177.00		35		$6,195	$6,195
Meals and incidentals	Day	$84.00		35		$2,940	$2,940
Auto / Travel	Day	$250.00		35		$8,750	$8,750
Copies / Prints	Lump Sum					$5,000	$5,000
Mail/Courier / Telephone / Insurance / Miscellaneous	Lump Sum					$1,000	$1,000
SUBTOTAL OTHER DIRECT COSTS						$28,885	**$28,885**
Labor Days	10	20	20	20	20	90	
Daily Rate	$400.00	$360.00	$240.00	$160.00	$80.00		
SUBTOTAL LABOR COSTS	$4,000	$7,200	$4,800	$3,200	$1,600		$20,800
TOTAL SUBCONSULTANT COSTS							**$20,800**
						TOTAL COSTS (Labor and Other Direct Costs)	**$149,805**

wastewater management. In Jamaica, the project seeks to support the rehabilitation of existing wastewater treatment facilities by the National Water Commission. The existing facilities currently make use of standard wastewater treatment technologies that need to be rehabilitated, expanded or upgraded to meet design intent and current regulatory standards. The approaches that are available to do this are an application of conventional treatment processes and technologies. As a result, PerformTech views this driver to be sufficient to support projects.

- **The Political Driver** - The political driver is of function of the effects that the proposed projects will have in deriving political support for their implementation. Given the environmental benefits associated with each project in Belize and Jamaica and the emphasis on tourism in each country, PerformTech believes that the political driver is strong for support of the projects. In both countries, the governments have embarked on programs aimed at improving wastewater management conditions. In Belize, the government has established a target for achieving 100% service coverage for effective sanitation by the year 2015. In Jamaica the government has established a program for improving the conditions and performance of its existing wastewater management infrastructure including the performance of its existing sewage treatment plants.

In addition to the above, PerformTech has based his recommendation on the ability of pilot projects to meet USTDA's funding criteria as presented earlier in Section 2 of this Desk Study report. PerformTech findings relative to the compliance of the projects to the funding criteria sought to investigate whether the projects will, most likely, achieve the following results:

- **Help improve environmental and wastewater management service and infrastructure conditions in Belize and Jamaica and, through possible replication, in other countries in the Caribbean region** - By their nature, each project is designed to enhance wastewater management in the pilot project locales. In Belize, the project is intended to develop a wastewater management system on the Placencia Peninsula which is currently facing significant development pressure as a result of tourism and which does not have an effective wastewater management system. In Jamaica, the National Water Commission is seeking to improve the performance of its existing wastewater treatment facilities. Each of the projects will improve environmental conditions in the locales where they are located and will also help define the pilot project financial approaches that can be replicated in other countries within the Caribbean region.

- **Be technically, financially and economically sound and based on commonly accepted best practices and sustainable approaches** - The Terms of Reference and budgets associated with each of the identified studies and assistance initiatives are aimed at utilizing sound practice approaches for developing an effective wastewater management system for Placencia Peninsula as well as for evaluating existing wastewater treatment facilities in Jamaica. The USTDA supported consultant activities will define the manner in which each pilot projects objectives can be achieved through the application of sound practice approaches. PerformTech believes that the technical objectives of each pilot project can be achieved in a cost effective and sustainable manner.

- **Be a development priority for the Governments of Belize and Jamaica** - Because of the significant reliance on tourism in both Belize and Jamaica, projects aimed at improving environment conditions (which, in both cases, is the basis for tourist attraction to the region) are expected to be a high priority of the government in each country. In addition, the IDB, as project sponsor, recognizes the importance of wastewater management in achieving sustainable development in the region.

- **Stimulate a meaningful level of exports of environmental equipment, technology and services from the United States to the region** - The strict estimate of exports that could be realized from the physical implementation of the technical components of the pilot projects may not lead to a significant level of U.S. export. However, it is important to note that the financial nature of the CReW pilot projects is aimed at developing replicable financial models for the development of wastewater management systems and services throughout the Caribbean region. As a result, the export potential benefits of the pilot projects may be considerably higher than those measured simply by the economic value of the U.S. export expected to be realized from the development of wastewater management system on Placencia Peninsula and the rehabilitation of the existing wastewater treatment facilities in Jamaica.
- **Enhance the implementation process of the identified projects as a result of USTDA participation through full or partial funding** - In a strict sense, the IDB may not require USTDA support to move the pilot projects forward. However, IDB's request of USTDA provides a significant opportunity for a strong cooperative relationship between two organizations that are seeking to foster development and improved environmental conditions in developing countries. In addition, USTDA support for the IDB initiative can help to facilitate and accelerate the development of the pilot projects to the benefit of potential U.S. exports.

15
CONTACTS

Individuals that were contacted as part of the Caribbean Wastewater Management Fund Project Desk Study are presented in the following table. All individuals provided input as part of PerformTech's data gathering effort for this Desk Study.

Table 15.1
LIST OF CONTACTS
Caribbean Wastewater Management Project Definitional Mission

Name/Title	Organization	Address	Telephone/Fax	Email
Patricia Arriagada Country Officer	U.S. Trade and Development Agency	1000 Wilson Boulevard Arlington, VA 22205	Tel (703) 875-4357 Fax (703) 875-4009	parriagada@ustda.gov
Nathan Younge	U.S. Trade and Development Agency	1000 Wilson Boulevard Arlington, VA 22205	Tel (703) 875-4357 Fax (703) 875-4009	nyounge@ustda.gov
Maria Navia Team Member / Consultant	Inter-American Development Bank (IDB)	1300 New York Avenue, NW Washington DC 20577	Tel (202) 623-1842 Fax (202) 623-1708	mnavia@iadb.org
Lu Shen Team Member / Financial Specialist	Inter-American Development Bank (IDB)	1300 New York Avenue, NW Washington DC 20577	Tel (202) 623-1030 Fax (202) 623-1708	lshen@iadb.org
Evan Cayetano Team Member / specialist for Belize and Jamaica	Inter-American Development Bank (IDB) Country Office Jamaica	40-46 Knusford Blvd. 6th fl. PO Box 429 Kingston 10, Jamaica	Tel (876) 877-7073 Fax (876) 926-2890	evanc@iadb.org
Dominiek Vangaever Team Member / Advisor	Inter-American Development Bank (IDB)	1300 New York Avenue, NW Washington DC 20577	Tel (202) 623-2447 Fax (202) 623-1708	dominiekv@iadb.org
Holly M. Burton P.E. Water and Sanitation Division	Inter-American Development Bank (IDB)	1300 New York Avenue, NW Washington DC 20577	Tel (202) 623-1091 Fax (202) 623-1708	hburton@iadb.org
Yvon Mellinger Team Leader/ Institutional Specialist	Inter-American Development Bank (IDB)	1300 New York Avenue, NW Washington DC 20577	Tel (202) 623-2121 Fax (202) 623-1708	yvonm@iadb.org
Brad Johnson	Resources Mobilization Advisors (RMA)	700 12th Street, N.W. Suite 700 Washington D.C. 20005	Tel (202) 904-2399 Fax (202) 904-2398	bjohnson@rmaconsult.com
Cesar Astralaga	Environment One Corporation	2773 Balltown Road Niskayuna, NY 12309	Tel (518) 346-6161 Fax (518) 346-6188	castralaga@eone.com

Annex 1
Terms of Reference – Belize Component

Terms of Reference

BELIZE PLACENCIA PENINSULA WASTEWATER MANAGEMENT PROJECT

Please see Annex 5 in the RFP.

C. CONTRACTOR SELECTION CRITERIA

Please see Section 4 in the RFP.

Annex 2
Terms of Reference – Jamaica Component

For complete report, please contact the USTDA library.

Annex 3
IDB Letter of Support

Washington, December 16th, 2009

Dear Mr. Leo R. Larochelle P.E.,

This is to confirm our concurrence with the Terms of References and Budgets that you are proposing for the Belize Placencia Wastewater Management Project and the Jamaica National Water Commission Pilot Project.
We believe that the results that would be obtained by the proposed studies would respond to our requirements for the preparation of those Projects under our proposed operation [Testing a Prototype Caribbean Regional Fund for Wastewater (CReW)]

Thank you very much for your efforts and dedication in the preparation of those documents.
Best regards.

Yvon Mellinger (Team Leader)

Annex 4
GEF Project Identification Form

The following is a completed standard GEF project identification form which presents additional detailed information concerning the IDB CReW initiative and the approach in developing the five pilot projects that are intended to demonstrate innovative financing approaches for wastewater management in the Caribbean region.

GEF

PROJECT IDENTIFICATION FORM (PIF)

PROJECT TYPE: Full-sized Project

THE GEF TRUST FUND

Submission Date:
September 3rd 2008

Re-submission Date:

Work Program (for FSP)	Nov. 2008
CEO Endorsement/Approval	Mar. 2010
GEF Agency Approval	June 2010
Implementation Start	Sept.2010
Mid-term Review (if planned)	Sept.2012
Implementation Completion	Sept.2014

PART I: PROJECT IDENTIFICATION

GEFSEC PROJECT ID[1]:
GEF AGENCY PROJECT ID: IADB: RG-X1011. GF/1010-
COUNTRY(IES): Countries of the Wider Caribbean - Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, St. Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Venezuela
PROJECT TITLE: Testing a Prototype
Caribbean Regional Fund for Wastewater Management (CReW)
GEF AGENCY(IES): IDB, UNEP[2]
OTHER EXECUTING PARTNER(S): Caribbean Development Bank, UNEP CAR/RCU, Government Ministries, local municipalities, and wastewater management utilities
GEF FOCAL AREA (S): International Waters
GEF-4 STRATEGIC PROGRAM(S): SP-2
NAME OF PARENT PROGRAM/UMBRELLA PROJECT: N/A

A. PROJECT FRAMEWORK

PROJECT OBJECTIVE: In the context of the Cartagena Convention and its LBS Protocol[3], to pilot revolving financial mechanisms and their related waste water management policy reforms that can subsequently be established as feasible instruments to provide sustainable financing for the implementation of environmentally sound and cost-effective wastewater management measures.

1.**Investment and innovative financing for waste water management**, including: (i) financing mechanism, (ii) project development facility (PDF), and (iii) monitoring and evaluation (IDB)	Investment, TA	**Financing mechanism** Improved access to appropriate wastewater management technologies *(# of municipalities having access to improved waste water management)* Reduced land based pollution to watersheds and coastal waters *(Reduced BOD levels, nutrient levels and faecal coliform concentrations at demonstration sites[4])* **PDF**	**Financing mechanism** Innovative financial mechanisms established and functioning *(# of projects financed, leveraging achieved)*	15.0	5.9	240.0***	94.1	255.0

[1] Project ID number will be assigned initially by GEFSEC.
[2] For provisional DRAFT elements of an interagency written agreement on collaboration between these agencies on implementing the present program, see Annex 1.
[3] I.e., Protocol on Marine Pollution from Land-based Sources and Activities.
[4] BOD = biological oxygen demand. See Annex 5 for discussion of tentative targets.

		Improvements in quality and quantity of project proposals submitted (*Increased financial sustainability of projects*)	**PDF** PDF window for TA to design projects to "bankable" status established *(Bankable projects designed)*					
2. **Policy reforms for wastewater management**, including capacity building and technical assistance consistent with the UNEP GPA's *Strategic Action Plan on Municipal Wastewater*[5] (UNEP)	TA	**Capacity building – policy & institutional strengthening** Improved local and national capacity in support of wastewater management, resulting in reduced land-based pollution to watersheds and coastal waters *(# of countries that have ratified LBS Protocol; laws/regulations adopted at the national level to facilitate compliance with the LBS Protocol; national plans and strategies for effective enforcement of domestic wastewater management regulations developed and enacted; improved integrated coastal management (ICM) protocols* **Awareness raising** Improved stakeholder awareness about environmentally acceptable, sustainable and cost-effective wastewater management solutions. Increased awareness about the importance to the protection and sustainable development of the Caribbean Sea *(# of countries that have ratified LBS Protocol and are implementing it accordingly)*	**Capacity building – policy & institutional strengthening** Documented policy, legal and institutional reforms for improved wastewater management at national and local level National inter-sectoral cooperation mechanisms established *(Enabling laws and regulations enacted at the national level to facilitate compliance with the LBS Protocol, as well as other relevant regional and international environmental agreements)* Training of government officials in the review, evaluation and selection of appropriate wastewater treatment technologies and management practices, including alternative technologies, to ensure compliance with national regulations and standards, as well as with the effluent limitation requirements of the LBS Protocol *(# of staff trained in the selection and use of appropriate wastewater management technologies; ecological sanitation and other alternative technologies mainstreamed into national policies at demonstration sites # of municipalities having adopted appropriate wastewater management and sanitation strategies; national plans and strategies for the effective enforcement of domestic wastewater management regulations enacted)* **Awareness raising** Development and dissemination of project outreach and awareness material on the availability of	2.5	45.5	3.0	54.5	5.5

[5] GPA = Global Programme of Action. See http://www.gpa.unep.org/documents/strategic_action_plan_on_english.pdf.

			appropriate technology and wastewater management measures *(Increased knowledge, skills, and use of wastewater treatment technologies by government officials with responsibility for wastewater management; series of publications documenting best practices and experiences in wastewater management distributed and used by other Caribbean nations)*					
3. **Regional dialogue** (IDB – UNEP)	TA	Increased demand for CReW-type facility *(Increased funding for CReW)* Multi-agency partnerships catalyzing replication of technologies, reform and innovative investments for nutrient reduction *(Increased dialogue and sharing of data, knowledge and skills by government personnel with responsibility for wastewater management)* Knowledge management in support of IW:LEARN *(Compiled knowledge and experiences about the project shared with other GEF projects)*	Regional stakeholder consultations *(Increased dialogue among stakeholders; public-private partnerships and synergies among stakeholders and programs established)* Clearing house mechanism/ center of excellence on wastewater management for the Caribbean established in support of the CReW and linked to the International Waters Learn Program (IW: LEARN) *(Enhanced sharing of information on wastewater management, including environmental, social and economic impacts, through website, clearinghouse mechanisms & IW: LEARN, in support of learning and replication of best practices)* Participation at the International Waters conferences; three to four experiences notes. *(CREW related information available at the IW:LEARN websites; improved project execution as a spin-off from IW Conference participation)*	0.5 *(IDB 0.3; UNEP 0.2)* [With 1% of overall GEF budget in support of IW:LEARN require-ments]	50	0.5	50	1.0
4. **Project management** (IDB – UNEP)				2.0 *(IDB 1.7; UNEP 0.3)*	20	8.0	80	10.0

* The percentage is the share of GEF and Co-financing, respectively, to the total amount for the component.

** TA = Technical Assistance; STA = Scientific & Technical Analysis.
*** Estimate of co-financing reflects the following considerations and assumptions: (1) *Financing mechanism (est. US$12 million).* At present the IDB pipeline for water/wastewater lending includes US$1.4 billion in new loans in the Wider Caribbean planned for approval during roughly the period of performance expected for the CReW. Of this amount, one assumes (based on historical trends) that one-half will be in wastewater. The CReW will mobilize 10 percent of that subtotal, representing US$70 M. One-to-one co-financing is expected from Governments for a total of US$140M (2) *PDF (est. US$2 M).* To date (8/08) the IDB's Infrastructure Fund, a PDF that has only been in operation for two years, has used an initial US$12.1 M investment to leverage US$10.7 M in additional project development resources and US$302.5 M in approved lending, for a total of US$313.2 M leveraged. This represents a 25.9 to 1 leveraging ratio to date, with a ratio of up to 100 to 1 possible as additional loans are approved. The CReW should be able to obtain matching project development resources from the IDB's Aquafund, as well as mobilize loans, to yield a similar leveraging ratio (assumed 50 to 1) as the InfraFund, to leverage US$100 M (half of this will come from the IDB and the other half from Government co-financing).

B. INDICATIVE FINANCING PLAN SUMMARY FOR THE PROJECT ($)

GEF	380,000	20,000,000	2,038,000	**22,418,000**
Co-financing	1,409,500	251,500,000	[redacted]	**252,909,500**
[redacted]	1,789,500	271,500,000	2,038,000	[redacted]

C. INDICATIVE CO-FINANCING FOR THE PROJECT (including project preparation amount) BY SOURCE and BY NAME (in parenthesis) if available, ($) – UNDER COMPILATION

Project Government Contribution	[redacted]		120,000,000	120,000,000
GEF Agencies:				
- IDB	[redacted]	1,279,500*	127,098,800	128,378,300
- UNEP	[redacted]	130,000	4,401,200[6]	4,531,200
Bilateral Aid Agency(ies)	(select)			
Multilateral Agency(ies)	(select)			
Private Sector	(select)			
NGO	(select)			
Others	(select)			

Notes:

*IDB co-financing during PPG preparation consists of the development of water/wastewater sectoral plans in 17 of the 24 countries of the Wider Caribbean (around US$63,500 each), plus US$200,000 for additional studies in Mexico.

D. GEF RESOURCES REQUESTED BY FOCAL AREA(S), AGENCY (IES) SHARE AND COUNTRY(IES)

IDB	International Waters		250,000	17,000,000	1,725,000	18,975,000
UNEP	International Waters		130,000	3,000,000	313,000	3,443,000

[6] Tentative sources: GPA, UNEP PAHO, CWWA (IWCAM, Contaminated Bay Project), LBS RACs, etc.

PART II: PROJECT JUSTIFICATION

A. STATE THE ISSUE, HOW THE PROJECT SEEKS TO ADDRESS IT, AND THE EXPECTED GLOBAL ENVIRONMENTAL BENEFITS TO BE DELIVERED:

STATEMENT OF ISSUES: The degradation of the Caribbean marine environment including through the discharge of untreated wastewater is a serious concern for those countries whose livelihoods depend heavily on their natural marine resources. Numerous scientific studies, including UNEP/GPA's 2006 report on the *State of the Marine Environment*, singled out untreated wastewater entering the world's oceans and seas as the most serious problem contributing to marine pollution. In the region, the recent Caribbean Sea Ecosystem Assessment (CARSEA) study similarly found that "sewage pollution from land sources and from ships has been the most pervasive form of contamination of the coastal environment."

Scientists have identified a number of serious consequences of marine pollution caused by untreated wastewater. In 2001, UNEP/GPA concluded that pathogenic organisms in waters contaminated by wastewater discharges cause "massive transmissions of infectious diseases to bathers and consumers of raw and undercooked shellfish"; researchers estimated the global impact at US$10 billion per year. GESMAP scientists concurred that infection of seafood and shellfish occurs through the disposal of urban/domestic wastewater. They also advised that "there is massive epidemiological evidence that enteric and respiratory diseases can be caused by bathing/swimming at marine coastal beaches contaminated [through] exposure to pollution from domestic wastewater sources." Discharge of untreated wastewater has other impacts as well. The CARSEA study found that sewage was one of the main factors that had caused some 80 percent of living coral in the Caribbean to be lost over the past twenty years.

Damage by untreated wastewater to the marine environment including living coral can bring about severe economic consequences for people in the Caribbean. The CARSEA study found that "the Caribbean is the region in the world most dependent on tourism for jobs and income," while "fishing is also a significant source of both income and subsistence." Yet both of these sectors are directly threatened by environmental degradation including due to wastewater discharge. To look just at the importance of coral reefs to the economy of Tobago: the World Resources Institute recently estimated that coral reefs currently provide upwards of US$100 million per year in benefits associated with tourism, US$18-33 million in shoreline protection, and another US$1million in benefits to fisheries. These benefits represent about half of the island's annual GDP. The potential economic harm to the region from further damage to the marine environment is enormous. It is for reasons like this that, for the wider Caribbean as well as seven other regions examined around the world, GESAMP scientists reported that controlling the discharge of untreated sewerage represents the number one priority for protecting the oceans from land-based activities.

Further, as sea levels rise, incidents of damage to coastal waters will increase due to additional sewage and open sewerage overflow incidents. National and local governments will need to address these developments in their long-term capital planning and resource allocation decisions.

There is thus urgent need to increase wastewater treatment in the Caribbean, which at present is far below needed levels. UNEP/GPA estimate that as much as 85 percent of wastewater entering the Caribbean is currently untreated. According to the Pan American Health Organization (2001), 51.5 percent of households in the Caribbean Region lack sewer connections of any kind; only 17 percent of households are connected to acceptable collection and treatment systems. Within Caribbean SIDS, less than two percent of urban sewage is treated before disposal; this is even lower in rural communities. On some islands (e.g., Antigua and Barbuda, Dominica, Haiti) there is no sewerage system; sewage is disposed mainly through septic tanks and pit latrines, many of which do not comply with minimum technical specifications or are not adequately maintained. Indeed, as a result of rapidly expanding populations, poorly planned development, and inadequate or poorly designed and malfunctioning sewage treatment facilities in most Caribbean countries, untreated sewage is often discharged into the environment with serious human and ecosystem health implications. Added to this is the discharge of untreated or partially treated sewage from many tourism facilities. Such a situation is responsible for the serious health, environmental and economic impacts noted above.

In recognition of the gravity of this situation, a number of Countries from the Wider Caribbean Region (WCR)[7] have ratified the Convention for the Protection and Development of the Marine Environment in the WCR, also known as the Cartagena Convention (adopted in Cartagena, Colombia on 24 March 1983), and signed the Protocol on Land Based Sources (LBS) of Marine Pollution, which was adopted on October 6, 1999 (see Annex 2). The LBS Protocol sets several goals to govern domestic sewage discharges into the waters of the Wider Caribbean.

While countries thus increasingly recognize the importance of improving wastewater management, obstacles exist to following the LBS Protocol and taking such steps. UNEP GPA reported in their 2006 *State of the Marine Environment Report* that significant financial constraints exist: there is a lack of adequate, affordable financing available for investments in wastewater management in the Wider Caribbean Region. Smaller communities in particular often find it difficult to obtain affordable financing for such improvements[8].

In addition to financial constraints and barriers, other substantial barriers also exist. These include inadequate national policies, laws and regulations; limited enforcements of existing laws and regulations; limited communications and collaboration between various sectors and agencies which contributes to a fragmented approach to wastewater management; and limited knowledge of and analytical capacity regarding appropriate, alternative and low cost wastewater treatment technologies. Other limitations in technical capacity (e.g., in developing project proposals, operating and maintaining treatment systems, and monitoring and analyzing wastewater discharges and impacts) constrain progress in effectively managing wastewater. Further, at present wastewater treatment is considered by many water utility managers and stakeholders as a low priority. Due to various reasons water supply generally ranks first, with the second priority being granted to the collection of sewage by means of covered sewerage systems due to health concerns, followed lastly by wastewater treatment. Finally at present countries often engage in "opportunistic capital planning" based on the availability of funding from donors or governments, and not on best value and net economic benefit.

Thus, developing innovative financial mechanisms, and making affordable resources available, to assist countries in the WCR to establish or expand domestic wastewater management programs and policies, to provide for the financing of cost effective, sustainable and environmentally acceptable wastewater management facilities based on community needs, constitutes a priority for the region.

HOW THE PROJECT SEEKS TO ADDRESS THE ISSUES: In response to the above mentioned situation, the Inter-American Development Bank (IDB) and the United Nations Environment Programme (UNEP) are proposing to establish a Caribbean Regional Fund for Wastewater Management (CReW). Overall, the CReW project would be composed of four components (see Framework above): (1) A flexible and innovative investment and financing mechanism, including: (i) a project implementation facility to finance wastewater projects; (ii) a project development facility (PDF) window that would provide technical assistance to project sponsors to help bring projects to "bankable" status; and (iii) a monitoring and evaluation subcomponent that would generate and analyze the information necessary to measure the performance of the CReW towards achieving its global objectives. (2) A policy reform component in support of improved wastewater management that is consistent with the GPA Strategic Action Plan Guidelines on Municipal Waste Water Management, including institutional and legal strengthening and capacity building to ensure technology transfer, targeting specifically innovative and low cost wastewater management technologies that provide communities with effective and locally manageable wastewater treatment and disposal at an affordable cost. This component would also promote public awareness and information exchange for improved wastewater management. (3) A component that

[7] As defined in the Cartagena Convention, the *Wider Caribbean Region* comprises the marine environment of the Gulf of Mexico, the Caribbean Sea and the areas of the Atlantic Ocean adjacent thereto, south of 30 north latitude and within 200 nautical miles of the Atlantic Coasts of the United States. The countries of this region (who are also members of the Caribbean Environment Programme) are as follows: Antigua and Barbuda, Bahamas, Barbados, Belize, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Grenada, Guatemala, Guyana, Haiti, Honduras, Jamaica, Mexico, Nicaragua, Panama, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago, and Venezuela.

[8] For key findings from a diagnostic on the financing of wastewater management in the region, prepared by RMA for the IDB in close coordination with UNEP as part of the CReW design process, see Annex 3.

would permit regional dialogue, linkages, coordination, communications and liaison between CReW staff, counterpart agencies, implementing partners, related programs (e.g., in integrated water resources management), and relevant Caribbean stakeholders including the private sector. (4) A project management component, under which a governance structure would be established as the primary coordination mechanism for launching and implementing the CReW.

The CReW would serve as a pilot project to demonstrate the viability in the region of an innovative fund approach to developing and financing wastewater projects, and engendering relevant policy reforms. As detailed above the approach should permit a significant leveraging of GEF resources. The CReW facility would have a flexible design to give the CReW sufficient latitude to shape financing arrangements that meet stakeholders' unique needs. A number of financial models for the CReW would be considered and evaluated, including zero interest loans as co-financing for a portion of pilot projects, reserve accounts and extended liquidity guarantees. For diagrams of the flow of funds under innovative financing schemes for illustrative pilot projects, see Annex 4. Financial arrangements for actual projects would be driven by the needs of the stakeholders and the desire to provide affordable financing on a sustainable basis. This flexibility would in essence permit a ground-up design of the CReW, while avoiding the imposition of an arbitrary approach that ultimately could prove unsustainable.

The diversity of types of wastewater projects and financing arrangements that the CReW could support is further suggested by the illustrative projects discussed in Annex 5. All of the examples are based on recent discussions with stakeholders and managers of local and national water service providers in the region, regarding projects that: (1) are of high priority for the local and national level water/wastewater services providers; (2) would produce significant improvements or prevent further erosion in the quality of coastal waters; (3) would provide for policy reforms; (4) have benefited from feasibility studies including costs/benefit analyses; and (5) would require innovative financial and advisory assistance to bring project financing costs within ratepayers' ability to pay. Smaller communities often find it difficult to obtain affordable financing to obtain the most appropriate technology for wastewater infrastructure improvements, e.g., construction of engineered wetlands, installation of new low-cost and ecological sanitation technology, renovation/replacement of outmoded wastewater treatment facilities, and connection of publicly-owned wastewater treatment facilities to outlying peri-urban and rural areas. Therefore the CReW would target wastewater service providers in smaller communities.

The CReW would operate on the basis of collaboration and partnership among the public and private sectors and civil society as an independent, regional funding mechanism. The facility will allow for the mobilization of additional funding for wastewater management and treatment investments at an affordable cost of capital. This would be achieved by using GEF resources to provide innovative and sustainable low cost capital in co-financing arrangements with other lenders/investors.

The CReW is also expected to establish a project development facility (PDF) that would provide technical assistance to project sponsors to help bring projects to "bankable" status. At the same time the IDB is in the process of establishing an "Aquafund" to fund project preparation studies, in some cases to finance projects, and to support policy dialogue in the water, wastewater and solid waste sectors. Initially the IDB will capitalize Aquafund with US$20 million; the Bank then will match donor co-financing resources on a dollar-for-dollar basis up to an additional US$40 million, for an eventual total capitalization of Aquafund up to US$100 million. Therefore, to leverage co-financing and implement both facilities efficiently, it is proposed that the CReW facility be implemented (with accountable management of its resources according to previously agreed upon implementation provisions) as a part of the Aquafund. More specifically US$ 14 million from component 1 of the CReW program would leverage an equivalent amount from the Aquafund, either during project preparation or else as reflows from CReW pilot projects become available. (Additional IDB leveraging as discussed above would occur via loan agreements that take place outside of the Aquafund.)

The potential benefits from improved wastewater management go well beyond the individual households that will directly benefit from CReW-supported pilot projects. Alternative approaches to wastewater management exist that, once piloted, can be replicated to broader local and national contexts if an adequate enabling environment is established at the national level. For this reason the CReW project will

also address policy reform and capacity building. The CReW will address the aforementioned deficiencies in capacity, and engage in the policy reform process, in a way that is consistent with the GPA wastewater management policy and in support of the LBS Protocol. Likewise the increase in public awareness and political support to improving wastewater management in the Wider Caribbean that the present project will engender will be critical to its sustainability. The availability of appropriate technology and wastewater management measures, and the learning from the policy reforms tested under the pilot projects, will serve as the basis for transfer of best practices to other countries of the Wider Caribbean Region. More broadly, this outreach and replication will engender greater awareness of the importance of protecting and developing the Caribbean Sea and its environs in a sustainable manner.

As noted above the CReW facility, funded under GEF 4, is conceived of as a pilot program. Depending on the results of this demonstration project, the CReW could be expanded into an even larger facility through additional capitalization under GEF 5, or from other donor resources.

GLOBAL ENVIRONMENT BENEFITS: Sewage related issues are a major trans-boundary concern of the countries in the region. Addressing such a major issue both from financial, technical and policy perspectives would result in the following global environmental benefits: (i) improved marine and coastal ecosystems functioning as a result of investments and policy reforms, (ii) improved well-being of people whose livelihood depends on coastal and marine ecosystems functioning to sustain their productive activities (fisheries, tourism, etc) ; (iii) enhanced pollution control in the Caribbean Basin (coastal and marine waters) by leveraging resources for investments in land-based pollution reduction as well as through the removal of technical, institutional and financial barriers; and (iv) reduction in the incidence of waterborne diseases. The combined actions of the Project will reduce marine environmental degradation strengthening long-term, cross-cutting and sustainable protection of strategic and coastal ecosystems such as wetlands, interior estuaries, mangroves, as well as their associated watersheds, drainage basins and near-shore coastal waters that have been declared to be of global importance.

Further, it is expected that the implementation of this project will encourage additional countries to ratify the LBS Protocol, thereby fulfilling their obligations vis-à-vis the Cartagena Convention. For letters of endorsement of the CReW program concept from representatives of countries that are signatories to the Cartagena Convention, see Annex 6.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

The Countries of the Wider Caribbean Region demonstrated their support for efficient and effective domestic waste water management by ratifying the Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region, also known as the Cartagena Convention (adopted in Cartagena, Colombia on 24 March 1983), and signing the Protocol on Land based Sources of Marine Pollution (LBS Protocol), which was adopted on October 6, 1999. The UNEP CEP Technical Report No. 33 of 1994 which informed the development of the LBS Protocol identified sewage as the number one point source of pollution impacting on the marine environment of the Wider Caribbean. Both the Convention and the Protocol set goals to govern domestic sewage discharges into the waters of the Wider Caribbean. Accordingly, Annex III of the LBS Protocol was designed to meet these goals by providing guidelines for the management of discharges of domestic wastewater, establishing wastewater effluent limitations, providing guidelines for management, operations and maintenance of wastewater treatment systems, developing criteria for classification of receiving waters, and providing timetables for countries to implement appropriate wastewater management systems.

Under the auspices of the GPA, UNEP CAR/RCU has developed and implemented regional and national pilot wastewater management projects in response to the needs and priorities of the Contracting Parties of the Cartagena Convention and other CEP member countries. These included the development of national and local plans for compliance with the requirements of Annex III to the LBS Protocol with regard to domestic wastewater through community based sewage needs assessments in Saint Lucia, Jamaica, Panama and Trinidad and Tobago. These assessments used the Sewage Needs Assessment Guidance Manual developed and published by UNEP CAR/RCU in 2003. Support has also been provided to the development and implementation of National Programmes of Action (NPAs) for the control of pollution

from land based sources and activities. These NPAs confirm the need for priority intervention to reduce discharges of untreated wastewater to the coastal and marine environment.

The countries in the region recently publicly recognized the need to strengthen mechanisms for financing projects and activities designed to meet these obligations. During the 12th Intergovernmental Meeting (IGM) on the Action Plan for the Caribbean Environment Programme, held in Jamaica on December 2, 2006, a specific decision was approved, requesting the Secretariat: *"to continue efforts to develop innovative financial mechanisms such as the Caribbean Revolving Fund for Wastewater Management to assist countries in meeting the obligations of the Cartagena Convention and in particular the Land Based Sources of Marine Pollution Protocol"*.

The high global priority for improving sanitation and wastewater management has been reflected in the Millennium Development Goals (MDGs) and the Johannesburg Plan of Implementation (JPOI). The particular challenges for wastewater management in Caribbean SIDS has been further articulated in the SIDS POA (Barbados 1994) and the Mauritius Strategy of 2005. Most of the major urban centers and rural communities of Caribbean SIDS are located in coastal areas, so in responding to wastewater management needs there must be careful consideration of existing and proposed land use, choice of appropriate technology, reducing negative impacts on human health and the environment, and evaluating insurance risks and the ability of persons to pay for the wastewater treatment services provided.

C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH GEF STRATEGIES AND STRATEGIC PROGRAMS:

The project is wholly consistent with the International Waters Focal Area Strategy of GEF-4. It contributes to **Strategic Objective 1** *(SO 1 – To foster international, multi-state cooperation on priority water concerns)*. It also contributes to the initiation of actions consistent with its **Strategic Objective 2** *(SO-2 – to play a catalytic role in addressing transboundary water concerns by assisting countries to utilize the full range of technical assistance, economic, financial, regulatory and institutional reforms that are needed*). The proposed project is compiled under **Strategic Program 2** (*reducing nutrient over-enrichment and oxygen depletion from land-based pollution of coastal waters in LMEs consistent with GPA*) through: (1) the design and execution of financial innovative mechanism(s) for supporting stakeholders to establish or expand domestic wastewater management systems based on realistic, cost-effective and environmentally sound measures therefore reducing stress onto coastal and marine environments and improving ecosystems functioning for increased livelihood of participating nations; as well as (2) through supporting national and local policy, legal and institutional reforms to reduce land-based pollution.

D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:

This proposed project, which focuses on the LBS Protocol and protecting the marine environment from a significant land-based source of pollution, will be coordinated closely with initiatives such as the Global Environment Facility-funded *Integrating Watershed and Coastal Areas Management (GEF-IWCAM)* Project, co-implemented by the United Nations Environment Programme (UNEP) and the United Nations Development Programme (UNDP), and co-executed by the Secretariat of the Cartagena Convention, UNEP Caribbean Regional Coordinating Unit (UNEP-CAR/RCU) and the Caribbean Environmental Health Institute (CEHI). GEF-IWCAM is currently focusing on raising awareness of the importance of integrated management of land-based activities in order to protect the coastal areas from pollution (such as sewage). The CReW initiative will be a logical and complementary next-step to GEF-IWCAM.

The IDB will be implementing the CReW as part of the Water and Sanitation Initiative approved by the Board of Directors on May 2007. The CReW initiative will also be a complementary step to the Global Water Operators Partnership (WOP) Alliance sponsored by the IDB (also see below). This Alliance was launched by the UN Settlements Programme (UN-Habitat) and partners in August 2007. The Alliance is designed to strengthen the capacities of public water and sewerage operators, including their abilities to plan long-range capital investments and develop projects. In June 2007, water utility managers from all over the Latin America and Caribbean (LAC) met in Brazil and endorsed formation of the Alliance. They encouraged the Inter-American Association of Water and Sanitation Engineering (AIDIS) to work to make operational and then host a regional WOP mechanism in the LAC region. The presence of CReW as

a new source of financing in the region will encourage less efficient utilities to build capacity via a regional WOP mechanism, so as to develop sewerage plans and projects for financing.

This proposed project will also help countries to respond to their obligations under the Cartagena Convention and the LBS protocol. Both of these legal instruments set ambitious goals to govern domestic sewage discharges into the waters of the wider Caribbean.

E. DISCUSS THE VALUE-ADDED OF GEF INVOLVEMENT IN THE PROJECT DEMONSTRATED THROUGH INCREMENTAL REASONING :

BASELINE: As mentioned above, according to the UNEP-GPA's October, 2006 Report on the "State of the Marine Environment", in Latin American and the Caribbean, it is estimated that the percentage of wastewater entering the Sea untreated is as high as 85 percent[9]. According to the Pan American Health Organization (2001), 51.5 percent of households in the Caribbean Region lack any sort of sewer connection, while only 17 percent of households are connected to disposal systems that are considered acceptable. Such a situation contributes to at least a half-million cases of illness a year from unsafe drinking water; and for negative impacts on the marine environment, which includes pollution of coastal waters and damage to coastal and marine habitats therefore impacting productive sectors such as tourism and fisheries.

Despite the recognition of the need to address domestic wastewater management issues in the Wider Caribbean, smaller communities in particular do not have access to affordable financing for wastewater infrastructure improvements. Deployment of technologies for adequate wastewater treatment requires capital investment. However, there is a lack of regional commitment to marshal financial assets of both the public and private sectors and directing them to the reduction of coastal pollution in the region. Most water utilities favor increased water supply projects over waste management projects and therefore reserve financial resources on a priority basis for water supply initiatives. Moreover, donor countries and international development agencies have historically favored larger wastewater projects in major urban areas, and have often neglected the wastewater treatment needs of smaller cities and rural areas. Most of these financial institutions, with the possible exception of the International Finance Corporation (IFC) which also deals with the private sector, the European Bank for Reconstruction and Development (EBRD) and the Inter-American Development Bank (IDB), have experienced difficulties in extending financing to sub-sovereign entities.

In addition to limited financial resources, another critical constraint limiting countries ability to effectively reduce pollution of the Caribbean Sea from land based sources are their weak policy, institutional, legal and regulatory frameworks for managing land-based pollution of coastal and marine waters.

Unless the region can address these issues and find alternative sources of financing, the wastewater treatment needs of secondary cities and smaller towns, villages and communities, will continue to be neglected. The result will be the continued degradation of the region's marine environment, further damaging its coral reefs, which cover 26,000 km2, protect 20 percent of the Caribbean coastline, and represent 11 percent of the world's corals. The inability to reduce pollution discharge to the Caribbean coastal waters will continue to jeopardize the well being of its inhabitants highly dependent on a healthy coastal and marine environment to reduce the incidence of water borne diseases, provide for their livelihoods (i.e. tourism, fisheries etc.), and reduce the impact of extreme events.

INCREMENTAL REASONING: The proposed project intends, through the removal of financial, technical and institutional barriers, to advance the fulfillment of countries obligations under the Cartagena Convention and its Protocols. The innovative regional financial mechanism in support of wastewater management and its associated capacity building and policy reforms proposed under this project will contribute to reducing land-based pollution discharge from untreated waste water. The CReW will create additional incentives for water utilities to consider wastewater projects on a stand-alone basis or as part of a larger water/wastewater capital improvement plan.The CReW will act as a facility for all stakeholders

[9] *GPA State of the Marine Environment Report – October, 2006*

concerned with water quality in the region, and will work with regional actors to mobilize government, the private sector and public support for sanitation projects.

The CReW will not compete with any international financial institutions, but rather will complement their programs throughout the region. Special attention will be given to coordinating the CReW implementation with new water/wastewater initiatives under consideration by the IDB. The proposed initiative will also strengthen the national and regional policy, legal, institutional frameworks and build participating nations capacity to reduce nutrient over enrichment providing multiple benefits and impacts on biodiversity, land degradation and climate change, as well as multiple benefits for other GEF focal areas. It is also anticipated that the successful participation of nations in the CREW will encourage countries to ratify the LBS Protocol.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED, AND IF POSSIBLE INCLUDING RISK MEASURES THAT WILL BE TAKEN:

Innovation and testing of new technologies brings certain levels of risk that neither countries nor private investors could bear on their own. Throughout the developing world, there has been very little private investment in the water and wastewater sector, and one of the major reasons for this is the perceived high risk of loss. Local and national water utilities are reluctant to implement wastewater projects due to the low ranking of wastewater projects in their priorities and the high costs of financing. This constitutes a major constraint on investments in wastewater treatment.	**Moderate**	The CReW will operate on the basis of collaboration and partnership among the public and private sectors and civil society as an independent, regional funding mechanism and will allow for the mobilization of additional funding for wastewater treatment investments at an affordable cost of capital. The financing mechanism developed on the basis of lessons learned from pilot projects, will consider utilization of reserve accounts, extended liquidity guarantees and other innovative financial mechanisms to lower the costs of financing eligible projects. It is also expected that the private sector investors will participate in the project's approval process. This will directly mitigate the risk of participating private sector lenders, and will indirectly mitigate the risk of private sector investors by spreading the risk among many investors (including the GEF).
Political will of participating governments is essential for the success of Land Base Pollution Reduction – it is not always granted.	**Low**	mere existence of the financial mechanism will not compel any ernment to participate, but it will offer them a highly efficient, highly- raged means of dealing with a growing problem that they have pledged ddress through their adherence to the Cartagena Convention and in icular the Land Based Sources of Marine Pollution Protocol. Similarly, sidering that many countries in the Caribbean Region now have cadres NGOs and CBOs dedicated to improving the life of the people, the olvement of these NGOs and CBOs will be also critical to the success of Project. Efforts will then be expended to provide the NGOs capacity- ding assistance and training, to undertake sustainable water/wastewater jects. This will begin during the PPG phase, when the resources and abilities of national and relevant regional NGOs and CBOs will be ssed. It will continue when the Project is operational. Moreover, a or focus will be on engaging overall public and community support and to demonstrate the value of wastewater improvements to human health economic livelihoods.
Weak mobilization/involvement of investment partners.	**Low**	The proposed initiative will build partnerships with the private sector, International Financial Institutions (IFIs) and other investors as a key element. Innovative partnerships will be promoted through improved capacity building, consultations processes and sensitization. Promotion of specific activities through individual projects could attract investors and generate global environmental benefits.

G. DESCRIBE, IF POSSIBLE, THE EXPECTED COST-EFFECTIVENESS OF THE PROJECT:

The project's financing mechanism will be cost-effective first because of the significant leveraging that it will achieve. The CReW's pilot approach will permit comparison, from a cost-effectiveness perspective, of this approach to other financing instruments and arrangements. Further, the project intervention will emphasize cost-effectiveness by: (i) capitalizing on the experience derived from other GEF initiatives that have similar execution schemes in LMEs worldwide; (ii) being in line with the IDB Water and Sanitation Initiative[10], which aims at extending access to water and sanitation services and protect water resources, support water decontamination and wastewater treatment, by encouraging national and local authorities and other stakeholders in making use of the full range of potential partners, including bilateral and multilateral organizations, the local and international private sector entities, and local and national governments to develop investment plans, address critical needs and priority reforms, and effectively extend coverage for the protection of water resources, water decontamination and wastewater treatment; (iii) taking advantage of the fact that UNEP serves as the Technical Secretariat of the Convention for the Protection and Development for the Marine Environment for the Wider Caribbean Region, which facilitates specific country-based activities, that at the same time enables a more efficient regional coordination; and (iv) promoting long-term shifts in investments and expenditure by private, public and international cooperation stakeholders, in favor of measures that will counteract the emerging trends towards the Caribbean Basin's environmental degradation, and thus prevent further negative impacts that are likely to be more costly to mitigate once they appear.

H. JUSTIFY THE COMPARATIVE ADVANTAGE OF GEF AGENCIES:

Inter-American Development Bank (IDB)

Assistance. Since its inception, IDB has played an active role in the water and sanitation sector, financing investment projects and providing technical assistance to countries undergoing sector reforms, based on the principles of universal access, efficiency, and sustainability. In particular, IDB has accumulated considerable experience in financing sewage and water treatment systems, with approximately US$8.8 billion of assistance for water and wastewater-related projects in Latin America and the Caribbean (LAC) for the period 1990-2005. More than a quarter of the assistance has gone to the countries in the Wider Caribbean, totaling US$2.1 billion. Table 1 is a summary of IDB assistance for the countries in the Wider Caribbean:

Table 1: IDB Assistance in the Wider Caribbean (1990 – 2005, US$)

Country	# of Projects		Amount
Bahamas	3	$	17,000,000
Barbados	1	$	51,200,000
Belize	1	$	195,250
Colombia	30	$	220,138,065
Costa Rica	8	$	63,241,420
Dominican Republic	5	$	33,265,000
Guatemala	12	$	160,530,000
Guyana	5	$	42,954,000
Haiti	19	$	78,276,314
Honduras	17	$	59,827,280
Jamaica	7	$	60,572,500
Mexico	14	$	1,125,253,941
Nicaragua	9	$	112,500,902
Panama	2	$	46,500,000
Technical Cooperation Operations	2	$	178,000
Trinidad & Tobago	1	$	100,000
Venezuela	2	$	30,002,200
	138	**$**	**2,101,734,872**

[10] This initiative complements the United Nations Hashimoto Action Plan (http://www.unsgab.org/Compendium_of_Actions_en.pdf), that promotes accelerated actions for achieving the MDG water and sanitation targets.

IDB will continue support for the wastewater sector in the Wider Caribbean region. The development of the Country Water Sector Strategic Plans under the Water and Sanitation Initiative (see below) will be instrumental in defining the scope and scale of needs in each of the IDB beneficiary countries, while GEF funding will enhance the development of wastewater treatment through awareness building, policy dialogue and knowledge sharing.

Initiatives. To help LAC countries in achieving the Millennium Development Goals (MDGs), IDB has developed a series of tools and initiatives to facilitate knowledge exchange, financing and technical cooperation. In 2007, IDB launched the Water and Sanitation Initiative (WSI), a program designed to help LAC countries identify key constraints in the water and sanitation sector such as financing of rehabilitation and expansion projects for both water and sanitation, as well as investing in structural reform of water and sanitation utilities and building their capacities to improve quality standards. Specifically, WSI supports the (i) development of Country Water Sector Strategic Plans; (ii) exploration of alternative financial instruments and innovative mechanisms to finance existing and new operations; (iii) coordination of funding from traditional and non-traditional donors as well as from the private sector; and (iv) coordination with other IDB initiatives, such as "Opportunity for the Majority", and the "Sustainable Energy and Climate Change Initiative". In the context of WSI, IDB has also developed the conceptual framework for the Aquafund[11] and the WaterExpress. The Aquafund is a financing mechanism that would combine IDB, private sector funds and public sector funds to support regional and national activities such as technical assistance, project preparation, water partnerships, knowledge dissemination and pilot investment projects. The WaterExpress is an expedited credit line facility designed specifically for the counterparts who has a proven level of technical, fiduciary and financial efficiency, to gain access to a more streamlined financing mechanism.

In addition, IDB and the United Nations Secretary General's Advisory Board on Water and Sanitation (UNSGAB) signed a Memorandum of Understanding to collaborate in a number of different areas, including: (i) Water Operators' Partnerships; (ii) financing of water and sanitation projects; (iii) sanitation; (iv) monitoring and reporting; (v) integrated water resources management; and (vi) water and disaster. Currently, two separate technical cooperation documents have been prepared, to: (i) set up a Water Operator Partnership (WOP) in LAC (see Section D, above); and (ii) develop an evaluation and rating system for water and sewerage operators.

United Nations Environment Programme (UNEP)

UNEP serves as the Secretariat for the Global Program of Action for the Protection of the Marine Environment to address land-based sources of marine pollution. UNEP CAR/RCU is the Secretariat for the Regional Seas Caribbean Environment Programme (CEP) adopted in 1981 and the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region (Cartagena Convention) adopted in 1986. Its mission is to promote regional co-operation for the protection and development of the Wider Caribbean Region with the major objective being the sustainable development and use of marine and coastal resources in the Wider Caribbean Region through effective, integrated management that allows for economic growth and sustainable livelihoods. Based on these, the Secretariat helps to coordinate scientific and technical projects conducted by national and regional agencies, scientific, technical and academic institutions; non-governmental organizations and the private sector. It facilitates Capacity Building & Technology Support, Public Awareness & Education, Sharing of Lessons Learnt & Best Practices through collection, review and dissemination of case studies and publications, Research, Monitoring & Assessment and national Legal, Institutional & Policy Reforms. In addition, UNEP CAR/RCU has established a network of national and technical focal points at the country level in

11 The IDB Aquafund will be established with a contribution of up to a total of US$50 million with resources of the Ordinary Capital (OC) of the IDB. Of that total, an initial installment of US$15 million will be allocated in 2008 upon approval of the establishment of the Aquafund. Additional OC resources to the IDB Aquafund, up to a maximum of US$35 million over the three-year period from 2009 to 2011 would be allocated on a match-funding basis, upon commitment of third-party resources to the Multi-Donor Aquafund or to operations under the Water and Sanitation Initiative. The proceeds from GEf would be considered as third party contribution and would therefore be matched by OC resources.

each of the 28 member Governments of the Caribbean Environment Programme and has established specialized Regional Activity Centres for the three protocols to support capacity building and technology transfer.

Three GEF funded projects under the International Waters Portfolio – on Reducing Contamination of the Caribbean Sea in Central America by Pesticide Run Off, Integrating Watershed and Coastal Area Management in Caribbean SIDS, and Demonstration of Innovative Approaches to the Rehabilitation of Contaminated Bays in the Wider Caribbean Region – are being executed and/or co-executed by UNEP CAR/RCU. Additional support by UNEP CAR/RCU is being provided to Regional GEF Projects on the Caribbean Large Marine Ecosystem, Invasive Species and Ballast Water. Finally UNEP CAR/RCU is coordinating activities under GEF IW:LEARN to test the effectiveness of cross focal area networking among a 'regional cluster' of ongoing and pipeline GEF projects in the Wider Caribbean.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S):

(Please attach the country endorsement letter(s) or regional endorsement letter(s) with this template). See Annex 5.

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

(Enter Name, Position, Ministry)	Date*: (Month, day, year)*

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for project identification and preparation.	
IDB GEF Agency Coordinator Ricardo Quiroga ricardoq@iadb.org	Project Contact Person Yvon Mellinger
Date: *(September 2, 2008)*	Email: yvonm@iadb.org Telephone: +1 (202) 623-2121
UNEP GEF Agency Coordinator: Maryam Niamir-Fuller Director, Division of GEF Coordination maryam.niamir-fuller@unep.org	Project Contact Person: Isabelle Vanderbeck Task Manager – IW Projects in LAC
Date: *(September 2, 2008)*	Email: isabelle.vanderbeck@unep.org Telephone: +1 (202) 458-3772

Annex 1
Principles Governing the Relationship Between the IDB and UNEP for the Implementation of the CReW project

Principles governing the relations between UNEP and IDB as the implementing agencies for the Project:

The UNEP and the IDB will have the responsibility for implementing and monitoring their respective Project Components.

Each agency will be responsible for its own costs. The Agency Fees will be distributed between UNEP and GEF proportionally to the amounts of their respective components.

Two separate Project Agreements will be signed; one between GEF and UNEP and one between GEF and IDB.

However to ensure the integrality of the project and foster the synergy between the two components, a Coordination Committee (CC) with 2 representatives from each of the two entities (UNEP and IDB) will be established. The CC will meet at least twice a year and upon justified request of one of the entities. Decisions from CC will be taken by consensus.

The repartition of the Project and Project Preparation Grant amounts between UNEP and IDB has been initially set per Section A ("Project Framework") of the Project Identification Form (PIF). However, those numbers may evolve to reflect the requirements established during the preparation of the Project.

Annex 2

CReW – List of Countries that Have Signed the Cartagena Convention, Have Ratified the LBS Protocol, and Are Eligible for IDB and CDB Assistance

1	Anguilla*	Caribbean	X			X
2	Antigua & Barbuda	Caribbean	X			X
3	Bahamas	Caribbean			X	X
4	Barbados	Caribbean	X		X	X
5	Belize	Caribbean	X	X	X	X
6	British Virgin Islands*	Caribbean	X			X
7	Colombia	South America	X		X	
8	Costa Rica	Central America	X		X	
9	Cuba	Caribbean	X			
10	Dominica	Caribbean	X			X
11	Dominican Republic	Caribbean	X		X	
12	Grenada	Caribbean	X			X
13	Guatemala	Central America	X		X	
14	Guyana	Caribbean			X	X
15	Haiti	Caribbean			X	X
16	Honduras	Central America			X	
17	Jamaica	Caribbean	X		X	X
18	Mexico	Central America	X		X	
19	Montserrat*	Caribbean	X			X
20	Nicaragua	Central America	X		X	
21	Panama	Central America	X	X	X	
22	St. Kitts & Nevis	Caribbean	X			X
23	Saint Lucia	Caribbean	X	X		X
24	St. Vincent & the Grenadines	Caribbean	X			X
25	Suriname	South America			X	X
26	Trinidad & Tobago	Caribbean	X	X	X	X
27	Turks & Caicos*	Caribbean	X			X
28	Venezuela	South America	X		X	

Note : *Territories of the United Kingdom are ineligible for GEF Projects.

Annex 3
Assessment of Financing of Wastewater Management in the Wider Caribbean: Summary of Preliminary Findings

In June 2008, the Inter-American Development Bank contracted Resource Mobilization Advisors (RMA) to assess the financing of wastewater management facilities in the Wider Caribbean. RMA carried out the assessment by attending and interviewing officials participating in regional and national conferences in Dominica, Colombia and Jamaica; holding teleconferences with officials in Jamaica and Honduras; conducting one-on-one telephone interviews with officials across the region; and undertaking a literature review. While the final report from this assessment is pending, key findings that influence design of the CReW facility include the following:

1. A variety of different types of water and wastewater service providers are active in the region. These include national-level agencies and utilities (e.g., in Jamaica), state-level service providers (e.g., in Mexico), municipalities (e.g., in Guatemala), local mixed capital companies (e.g., in Honduras), private operators (e.g., in Colombia), and urban and rural water committees (e.g., in Belize). These various types of entities experience correspondingly different levels of access to affordable finance for wastewater collection and treatment facilities. CReW implementers will need flexibility in deploying resources to support financing for even a portion of this range of types of entities. The CReW support is not intended nor would be able to compete with sovereign guarantee loans provided by an international financial institution, but should be able to fill other financing niches.

2. While some service providers manage to recover at least operations and maintenance costs through user charges, very few providers of water/wastewater services are able to recover full costs including investment-related expenses. Reasons for relatively low tariff levels include the perception that water is a "social" good, an absence of subsidies that effectively target the truly needy, a lack of institutional independence on the part of service providers, other legal, regulatory and institutional weaknesses, an inability of some customers to pay and so on. As a result service providers are often less creditworthy than they would be otherwise. This in turn complicates their access to financing on affordable terms, and the task of CReW to provide such resources.

3. Service providers and customers generally consider wastewater treatment to be a lower priority than the provision of potable water service and the collection of wastewater. This is in part because many of the benefits achieved via sewerage treatment are downstream of and external to the immediate service area. To help attract investment in wastewater treatment, such financing needs to be offered on as attractive terms as possible.

4. Revenue flows from port or tourism taxes or charges offer a potentially important – and appropriate – resource to support the debt financing of wastewater collection and treatment facilities on the Caribbean coast. Further, because such sources can be buoyant in the face of exchange rate fluctuations, they could play an effective role particularly in supporting international lending operations in hard currency. However, while isolated examples exist in the region of grant and loan programs that utilize such revenues to help finance wastewater facilities (e.g., in Mexico and Honduras), to date officials across the Wider Caribbean have not taken full advantage of these potential financial resource. The CReW program should

provide for flexibility in developing innovative financing schemes to take advantage of such untapped possibilities.

5. IDB's Infrastructure Fund has demonstrated that non-reimbursable project development facility (PDF) can achieve very high leveraging ratios – and are extremely important to bring projects to their implementation phase. However, PDF where the service provider is liable for costs – even on a contingent basis – have proved inefficient in their implementation
6. In many cases plans and designs already exist for facilities to support improved wastewater management. While the engineering quality of such designs needs verified, and budgets and schedules need updated, the major unmet need in project development is for advisory services to structure viable project financing and bring them to financial close. The CReW program should help meet that need.

Annex 4
Illustrative Flow of Funds for Pilot Projects Implemented Under CReW

The following examples, based on discussions with officials in the region on financing improved wastewater management, illustrate the range of models that CReW could use to finance sewerage collection and treatment facilities.

Illustrative Project I – CReW Co-Financing

A national level agency intends to take out a US$ 10 million loan from an international financial institution (IFI) to finance a sewerage collection project. While engineers have prepared designs for both sewerage collection and enhanced sewerage treatment facilities, at present the fiscally conservative government only plans to finance sewerage collection.

Under the proposed financing plan, CReW resources are used to make a US$ 2 million loan at zero interest to the local water/wastewater service provider to upgrade its sewerage treatment facilities. This model provides for a comprehensive program at the lowest combined cost of financing. As these two projects are both part of a comprehensive program for wastewater management and are closely related, this model can be said to provide for 5-to-1 leveraging of CReW resources. Another advantage is that this approach mobilizes an additional US$ 2 million in loan resources without negatively impacting the central government's balance sheet.

Illustrative Project II – CReW Guarantee Facility for Revenue Flows

A local water/wastewater service provider has applied to a local financial institution for a loan to finance sewerage collection and treatment facilities. Following local lending practices, the lender intends to collateralize the loan with some of the provider's real estate assets. However, since the local service provider has a fairly weak balance sheet, the lender is reluctant to lend sufficient resources on favorable terms.

Under the proposed financing model, the local service provider pledges projected revenue streams from expansion or improvement of services – a classic project finance model. The CReW offers a guarantee to the local bank to cover any annual shortfall in projected revenue streams from the project. (The local provider's annual revenues would have to exceed annual debt service obligations by a certain proportion to quality for the CReW guarantee.) In the event of such a shortfall, the CReW would have recourse to the local provider's periodic intergovernmental revenue transfers via an intercept mechanism. This approach encourages local lenders to modernize their lending practices.

Illustrative Project III – CReW Extended Loan Maturities Program

A local water/wastewater service provider has approached a local bank for a loan to finance a sewerage treatment project. Reflecting the local financial market, the bank is willing to make a loan with a seven year maturity. This is much shorter than the useful life of the infrastructure being financed, so as a result the periodic debt service that the utility would have to pay would be quite high. This would place a substantial burden on rate-payers.

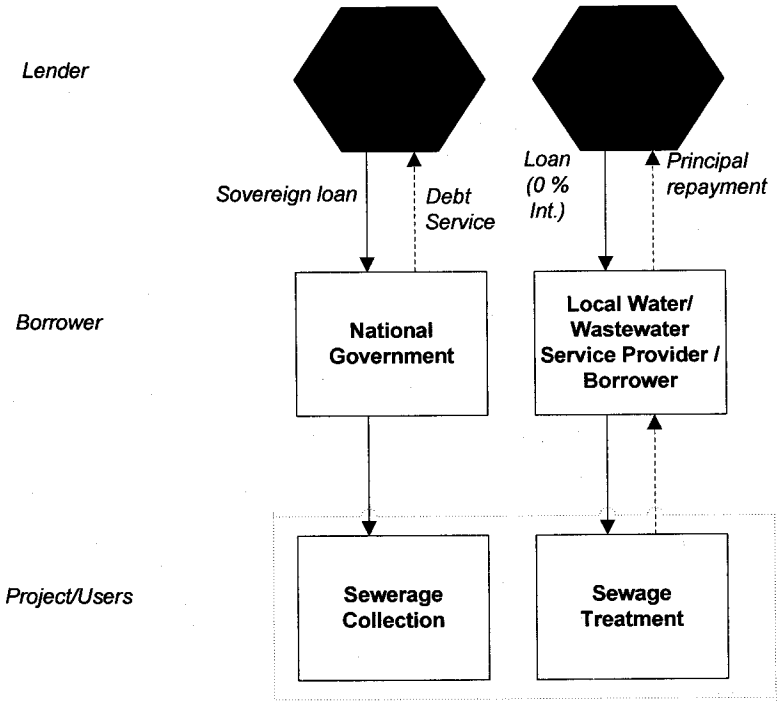
Under the proposed model, CReW resources are used to permit longer-term financing than local borrowers might otherwise be able to obtain from local lenders. Under this financing model the local lender makes a loan with a seven year maturity that is amortized over 15 years. At the end of year 7, the local bank has a choice – either continue to hold the loan or else have it transferred

to a CReW-supported financial institution. Under this option the CReW-supported entity would receive debt service payments for years 8 to 15 of the loan. This arrangement would result in much lower annual debt service payments – and thus lower user charges – than would otherwise obtain.

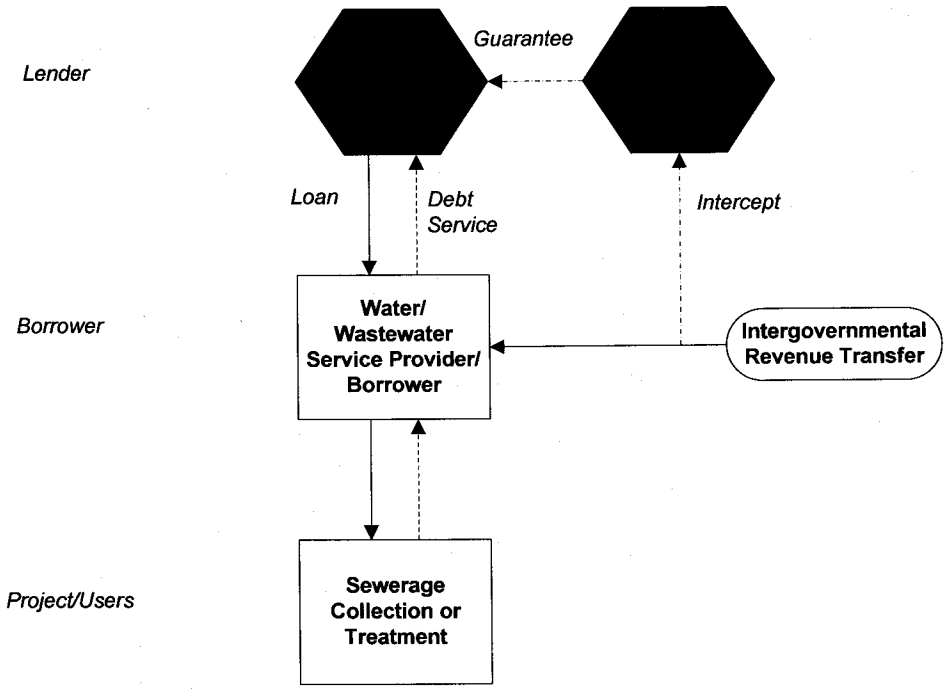
During a regional meeting held on 27 August 2008 in Jamaica to discuss the CReW, the representative of a national water/wastewater service provider from a Caribbean nation proposed a variation on this model. He suggested that, rather than play a role at the end of a financing, in some circumstances the CReW could provide a bridge or initial loan under affordable terms to finance a project at the *outset* of a financing; later the debt could be transferred from a CReW-supported facility to another financial institution. Situations where this role might be appropriate for the CReW could include the following: (i) To finance a wastewater treatment plant during a defined period where there is construction risk, or where risk exists that the plant will not be connected to a sewerage collection system in a timely fashion and so will not become economically and financially viable as soon as possible. (ii) To finance a wastewater management facility in a timely manner, where there is urgent need. Then an international financial institution could take over and convert the CReW-provided bridge loan into a longer-term loan under affordable terms once such a loan was approved. These options require further study and consideration.

For diagrams of these illustrative financial models, please see below.

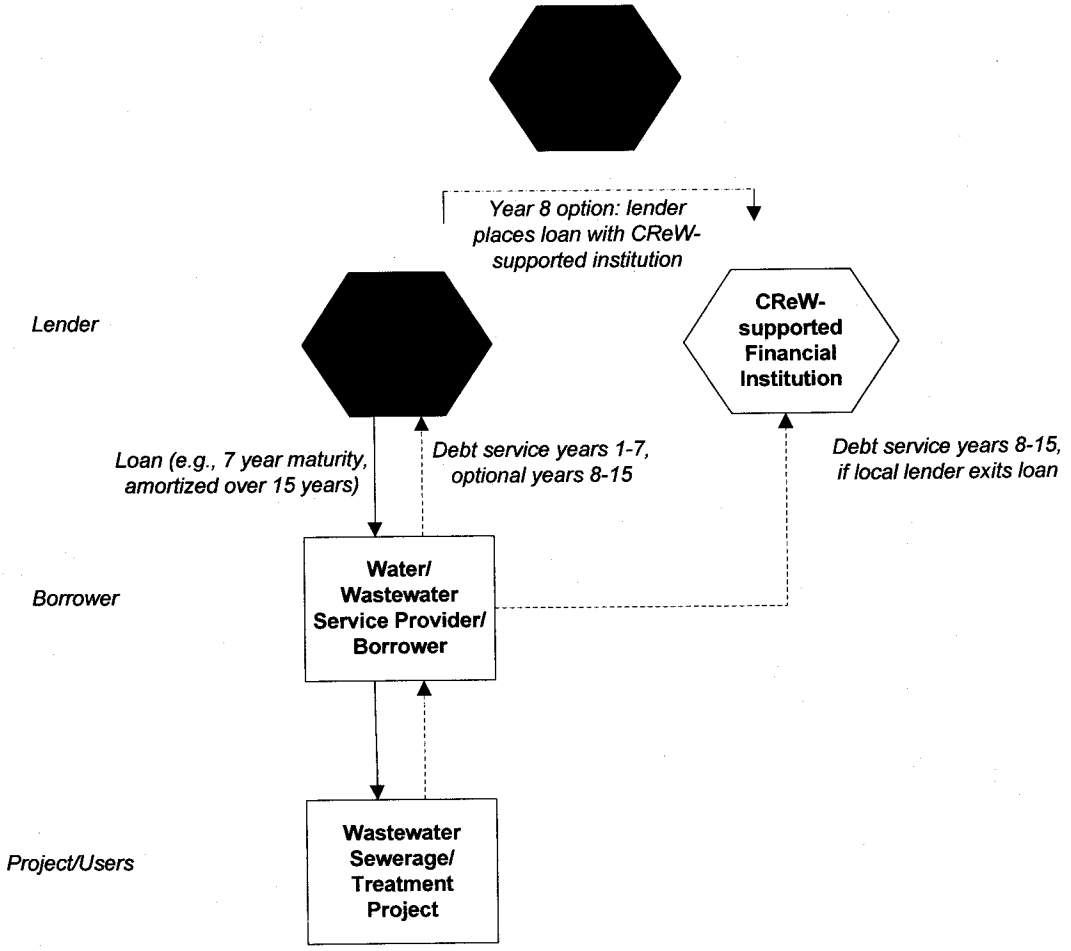
Illustrative Financial Model I:
CReW Co-Financing



Illustrative Financial Model II: CReW Guarantee Facility for Revenue Flows



Illustrative Financial Model III: CReW Extended Loan Maturities Program



Annex 5
Illustrative Wastewater Projects for CReW Support, With Outcomes[12]

Indicative Outcomes for Pilot Projects	
A. Population with access to improved wastewater treatment facilities is increased. B. Number of households connected to central wastewater treatment plant is increased. C. Improved chemical, biophysical or biological parameters at demo site. D. Volume of untreated effluent at demonstration site is reduced. E. Volume of secondary/tertiary treatment of effluents at demo site is increased. F. Volume of wastewater recycled or reused is increased.	A. Stakeholder participation strategy is developed. B. Improved understanding of environmental impacts and economic losses consequent upon improper wastewater disposal. C. Increased knowledge skills, and use of participatory methods and practices by personnel in government agencies with responsibility for wastewater management. D. Operator training and preventive maintenance programmes established. E. Increased capacity for monitoring reductions in BOD loadings, nutrient loadings, suspended solids, etc. F. Dissemination of demo site projects results. G. Increased use of appropriate alternative technologies for wastewater treatment (constructive wetlands, etc.) H. New wastewater treatment plants/technologies/measures comply with obligations of the LBS Protocol and existing national legislation and regulations.

[12] Selection of pilot projects will strive to reflect appropriate geographical representation within the Wider Caribbean, and country commitment to the ratification and implementation of the LBS Protocol.

Rehabilitation of outdated sewage treatment facilities: A national water utility is proposing a $2 million project located in a heavily urbanized area where no central sewerage plant exists. Plans are to rehabilitate and upgrade to tertiary treatment 2 existing facilities, one servicing 980 households and one servicing a total population of approximately 20,000, including formal and informal settlements. Area available to construct the required modules is limited and will require an innovative approach to the design of the upgraded system. Although the utility is intent on covering investment costs with customer revenue streams, social challenges are represented by the informal settlements who do not have a tradition of paying for water services.	A, C, D, E	A, B, C, D, E, F, G, H
Jump-starting the installation of wastewater treatment facilities: A wastewater collection project is proposed for a thriving community to coincide with a surge in real estate development, an increase in high profile tourism, and plans for paving of a road from the main highway to the demo site. The project has become a high priority as it is perceived that any pipe work should be installed prior to paving. The collection system would be the first step in a master plan to install a sewage treatment plant in conformance with legislation passed to comply with the LBS protocol, recently ratified by the country. The project includes connection of an indigenous community to the central system.	A, B, C, D	A, B, C, D, E, F, H
Line of Credit to finance compliance with wastewater discharge requirements: A national ministry of housing in the process of developing a number of low income housing projects, is seeking a line of credit to cover costs for financing water/wastewater treatment in compliance with recently enacted water discharge requirements. Technology under consideration involves modular units with membrane technology, including a wastewater reuse component.	A, C, D, E, F	A, B, C, D, E, F, G, H
Upgrade of wastewater treatment facilities: A national water utility has developed a comprehensive capital improvement plan for the entire water and sewerage system on the island. The island is seeking to finance the incremental costs of deployment of alternative technologies to	A, B, C, D, E	A, B, C, D, E, F, G, H

upgrade current wastewater treatment facilities from primary to secondary, and to extend treatment coverage to low and moderate income communities.		
Extension of coverage of existing central wastewater treatment systems: A national water utility proposes to eliminate the present overloaded and inefficient septic tank/soakaway system of a modest income housing development, and to provide a reliable sewerage network installation of 6,000 feet of sewerage network to connect to the central sewerage system, and installation of pump station. The chief environmental impact will be a reduction of point source pollution to the nearby river, whose waterfront boutiques and restaurants are an important source of tourist income for the island. The total cost of $700,000 would be recouped in part by water provision tariffs.	A, B, C, D, E	A, B, C, D, E, F, H
Expansion of collection system to include wastewater treatment: The national government proposes to establish a wastewater collection system in a small coastal community with high environmental impact, and if able to obtain funding, would expand the project to finance a wastewater treatment component at the same time. Approximate cost would be $1.2 million.	A, B, C, D	A, B, C, D, E, F, H

Other possible projects for which details are not yet available include:

- Expansion of water provision projects to include wastewater treatment component;
- Financing wastewater treatment component of wider proposal for rehabilitation of heavily contaminated Bays in the Wider Caribbean;
- Wastewater wetland treatment system designed to treat domestic wastewater to advanced secondary water quality levels.

Annex 6
CReW Endorsement Letters

[To be provided under separate cover.]

Requests have been sent to GEF Focal points and letters are expected .

Annex 5
Partial Listing of Consultants and Suppliers

In accordance with the Desk Study terms of reference, PerformTech is required to provide a listing of United States organizations that would have an interest in the projects in Belize and Jamaica. Accordingly, the following include a partial listing of environmental focused associations, consulting firms and suppliers that could provide the equipment materials and services for the development of the pilot projects.

In addition to the general listing of U.S. service and equipment suppliers list that follows, a number of U.S. companies actively participated in the Caribbean Water and Wastewater Association's Annual Meeting in St. Thomas in October 2009 . Their participation in this conference through presentations and/or booth sponsorship is a clear indication of their interest in pursuing work in the Caribbean region and may also be interpolated into potential interest in the specific projects that are the subject of this Desk Study. This listing of CWWA annual meeting participants is shown on page 29 of this Desk study report.

PARTIAL LISTING OF U.S. ENVIRONMENTAL TRADE ASSOCIATIONS

AMERICAN CONSULTING ENGINEERS COUNCIL
1015 15th Street, NW
Washington, DC 20005

AMERICAN WATER WORKS ASSOCIATION
6666 West Quincy Avenue
Denver, CO 80235

ENVIRONMENTAL INDUSTRY ASSOCIATION
4301 Connecticut Ave. N.W.
Suite 300 Washington, DC 20008

ENVIRONMENTAL TECHNOLOGY COUNCIL
915 15th Street, N.W.
Fifth Floor
Washington, DC 20005

WATER AND WASTEWATER EQUIPMENT MANUFACTURERS ASSOCIATION
P. O. Box 17402
Dulles International Airport
Washington, DC 20041

WATER ENVIRONMENT FEDERATION
601 Wythe Street
Alexandria, VA 22314-1994

ENVIRONMENTAL EXPORT COUNCIL
1835 K Street N.W. - Suite 805
Washington, DC 20006

INTEGRATED WASTE SERVICES ASSOCIATION
1401 H Street N.W. - Suite 205
Washington, DC 20036

MANUFACTURERS OF EMISSIONS CONTROLS ASSOCIATION
1707 L Street, N.W., #570
Washington, DC 20036

AIR AND WASTE MANAGEMENT ASSOC.
MUNICIPAL WASTE COMMITTEE
Fort Duquesne Boulevard
P.O. Box 2861
Pittsburgh, PA 15230
(412) 232-3444; Fax: (412) 232-3450
Web Site: www.awma.org

ALUMINUM ASSOCIATION
900 19th Street, NW - Suite 300
Washington, DC 20006
(202) 862-5100; Fax: (202) 862-5164
Web Site: www.aluminum.org

AMERICAN FOREST & PAPER ASSOCIATION
1111 19th Street, NW
Washington DC 20036
(202) 463-2700
E-mail: info@afandpa.ccmail.compuserve.com
Web Site: www.afandpa.org

AMERICAN SOCIETY OF MECHANICAL ENGI NEERS
SOLID WASTE PROCESSING DIVISION
345 East 47th Street
New York, NY 10017-2392
(212) 705-7722; Fax: (212) 705-7674
(800) 843-2763
E-mail: manese@asme.org

ASPHALT RECYCLING & RECLAIMING ASSOCIATION
3 Church Circle - Suite 250
Annapolis, MD 21401
(410) 267-0023
E-mail: 74603.3345@compuserve.com

ASSOCIATION OF STATE & TERRITORIAL SOLID WASTE MANAGEMENT OFFICIALS
444 North Capitol Street, NW - Suite 315
Washington, DC 20001
(202) 624-5828; Fax: (202) 624-7875
E-mail: swmkerry@sso.org
Web Site: www.astswmo.org

AMERICAN SOCIETY FOR TESTING & MATERIALS
c/o Old Dominion Engineering Services Company
13900 Elmstead Road
Midlothian, VA 23113
(804) 794-6437; Fax: (804) 794-5160

COMMITTEE FOR ENVIRONMENTALLY EFFECTIVE PACKAGING
601 13th Street, NW - Suite 900, South
Washington, DC 20005
(202) 783-5594; Fax: (202) 783-5595

COMPOSTING COUNCIL
114 South Pitt Street
Alexandria, VA 22314-3112
(703) 739-2401, Fax: (703) 739-2407
E-mail: comcouncil@aol.com
www.composter.com/composting council

CORNELL WASTE MANAGEMENT INSTITUTE
Center for the Environment
100 Rice Hall - Cornell University
Ithaca, NY 14853-5601
(607) 255-1187; Fax (607) 255-8207
E-mail: cwm@cornell.edu
Web Site: www.cfe.cornell.edu/wmi/

COUNCIL OF STATE GOVERNMENTS
Center for the Environment
P.O. Box 11910
Lexington, KY 40578-1910
(606) 244-8000, Fax: (606) 244-8001
E-mail: info@csg.org
Web Site: www.csg.org

ENVIRONMENTAL DEFENSE FUND
257 Park Avenue, South
New York, NY 10010
(212) 505-2100; Fax: (212) 505-2375
E-mail: members@edf.org

INSTITUTE OF SCRAP RECYCLING INDUSTRIES
1325 G Street, NW - Suite 1000
Washington, DC 20005
(202) 737-1770; Fax: (202) 626-0900
Web Site: www.isri.org

ENVIRONMENTAL INDUSTRIES ASSOCIATION
(Formerly: National SWM Assoc.)
4915 Auburn Avenue - Suite 303
Bethesda, MD 20814
(301) 961-4999, Fax: (301) 961-3094
E-mail: eiacom@aol.com
Web Site: www.envasns.org

INTEGRATED WASTE SERVICES ASSOCIATION
1401 H Street, NW - Suite 220
Washington, DC 20005
(202) 467-6240; Fax: (202) 467-6225
E-mail: iwsa@ix.netcom.com

INTERNATIONAL CITY/COUNTY MANAGEMENT ASSOCIATION
777 North Capitol Street, NE - Suite 500
Washington, DC 200024201
(202) 289-4262, Fax: (202) 962-3500
Web Site: www.icma.org

KEEP AMERICA BEAUTIFUL, INCORPORATED
1010 Washington Boulevard
Stamford CT 06901
(203) 32i-8987; Fax: (203) 325-9199
Web Site: www.kab.org

NORTH AMERICAN HAZARDOUS MATERIALS MANAGEMENT ASSOC.
15 Barre Street
Montpelier, VT 05602
(802) 223-9000; Fax: (802) 223-0269
E-mail: NAHMMA@aol.com

SCRAP TIRE MANAGEMENT COUNCIL
1400 K Street, NW - Suite 900
Washinoton, DC 20005
(202) 682- 488O, Fax: (202) 6824854

SOLID WASTE ASSOCIATION OF NORTH AMERICA - SWANA
1100 Wayne Avenue - Suite700, P.O. Box7219
Silver Spring, MD 20907-7219
(301) 585-2898; Fax: (301) 589-7068
E-mail: swana@milkern.com
Web Site: www.swana.org

THE WASTE WATCH CENTER
16 Haverill Street
Andover, MA 01810
(508) 470-3044; Fax: (508) 470-3384
E-mail: wwc@shore.net

NATIONAL RECYCLING COALITION
1727 King Street - Suite 105
Alexandria, VA 22314
(703) 683-9025; Fax: (703) 683-9026

NATIONAL SOLID WASTE MANAGEMENT ASSOCIATION
(see: Environmental Industry Association)

NATURAL RESOURCES DEFENSE COUNCIL
40 West 20th Street
New York, NY 10011
(212) 727-2700; Fax: (212) 727-1773
E-mail: nrdcinfo@nrdc.org
Web Site: www.nrdc.org

U.S. CONFERENCE OF MAYORS
MUNICIPAL WASTE MANAGEMENT ASSOCIATION
1620 "1" (Eye) Street, NW - 6th Floor
Washington, DC 20006
(202) 293-7330; Fax: (202) 293-2352
Web Site: www.usmayors.org

PARTIAL LISTING OF U.S. CONSULTING FIRMS TO PROVIDE ENGINEERING SERVICES

ABB Environmental Services, Inc.
107 Audubon Road
Wakefield, MA 01880
617-245-6606

Black & Veatch
P. O. Box 8405
Kansas City, MO 64114
913 339-2222

Brown and Root Environmental
661 Anderson Drive
Pittsburgh, PA 15220
412-921-8688

Brown Vence and Associates
120 Montgomey St. Suite 1000
San Francisco CA 94104
415-434-0900

Camp Dresser & McKee, Inc.
One Cambridge Center
Cambridge, MA 02142
617-452-6000

Greeley and Hansen
100 S. Wacker Drive
Chicago, IL 60606
312-558-9000

Hazen & Saywer, P.C.
730 Broadway
New York, NY 10003
212-777-8400

Malcolm Pirnie, Inc.
102 Corporate Park Drive
White Plains, NH 10602
914-694-2100

Metcalf & Eddy
617-246-5200

Montgomery Watson
Pasadena, CA
818-796-9141

O'Brien & Gere Engineers
5000 Brittonfield Parkway
Syracuse, NY 13221-4873
215-437-6100

Parsons Engineering Science, Inc.
One Penn Plaza
New York, NY 10119
212-465-5000

Roy F. Weston, Inc.
One Van deGraff Drive
Burlington, MA 01803
617-229-2050

R.W. Beck
The Corporation Center
550 Cochituate
Framingham MA 01701
508-935-1600

T.Y. Lin International
Jacksonville, Florida
904-725-8388

UGC Consulting
6200 S. Syracuse Way, Suite 222
Englewood, CO 80111
303-773-6166

URS Consultants, Inc.
606 Virginia Beach Blvd.
Virginia Beach, VA 23482-5631
757-499-4222

Wehran Engineering Corporation
6 Riverside Drive
Andover, MA 01810
508-682-1980

Woodard & Curran, Inc.
41 Hutchins Drive
Portland, ME 04102
207-774-2112

Wright-Pierce Engineers
99 Main Street
Topsham, ME 04086
207-725-872

LIST OF POTENTIAL EQUIPMENT VENDORS AND ORGANIZATIONS FOR CONDUCTING FEASIBILITY STUDIES CONCERNING WATER SUPPLY AND WASTEWATER TREATMENT

1. Baker Process, Inc
   669 West 200 South
   Salt Lake City, Utah 84101
   (801) 526-2000, (801) 526-2014 (FAX)
2. Infilco Degremont, Inc.
   P.O. Box 71390
   Richmond, VA 23255-1390
   (804) 756-7600, (804) 756-7830 (FAX)
3. Ionics Inc.
   65 Grove Street
   Watertown, MA 02472
   (617) 926-2500, (617) 926-4304 (FAX)
4. Aqua-Aerobic Systems, Inc.
   P.O. Box 2025
   Rockford, IL. 61130
   (815) 654-2502, (815) 754-2508 (FAX)
5. Koch Membrane Systems, Inc.
   850 Main Street
   Wilmington, MA 01887
   (800) 356-4031, (978) 657-7349 (FAX)
6. U.S. Filter, Inc
   Industrial Wastewater Systems
   181 Thorn Hill Road
   Warrendale, PA 15086
   (800) 525-0658, (724) 772-1360 (FAX)
7. Osmonics, Inc.
   5951 Clearwater Drive
   Minnetonka, MN 55343
8. Calgon Carbon Corp.
   P.O. Box717
   Pittsburgh, PA 15230 -0717
   (800) 422-7266, (412) 787-6324 (FAX)
9. ANDCO Environmental Process, Inc.
   595 Commercial Drive
   Amherst, NY 14228
   (716) 691-2100, (716) 691-2880 (FAX)
10. Export Technologies, Inc.
    3955 Leapheart Road, #1A
    West Columbia, SC 29169-2418
    (803) 794-2543, (803) 796-0999 (FAX)
11. Global Water Technologies
    1503 N.Zang Blvd.
    Dallas, TX 75203
    (214) 948-8460, (214) 948-4834 (FAX)
12. Enviropure Solutions
    100 Bridge Street
    Wheaton, IL 60187
    (630) 871-1001, (630) 871-0303 (FAX)
13. Envirotrol, Inc.
    432 Green Street
    Sewickley, PA 15143
    (412) 741-2030, (414) 741-2670 (FAX)
14. Sanborn Technologies
    630 Currant Road
    Fall River, MA 02720
    (508) 679-6770, (508) 679-5779 (FAX)
15. Prosys Corp.
    187 Billerica Road
    Chelmsford, MA 08124
    (978) 250-4940, (978) 250-4977 (FAX)
16. Met-pro Corp. Systems Division
    P.O. Box 144
    160 Cassell Road
    Harleysville, PA 19438
    (215) 0723-6751, (215) 723-6161 (FAX)

17. Sanitaire Corporation
    9333 North 49th Street
    Brown Deer, WI 53223
    (414) 365-2200, (414) 365-2210 (FAX)

18. Carbtrol Corp.
    51 Riverside Ave.
    Westport, CT 06880
    (203) 226-5642, (203) 226-5322 (FAX)

19. Black & Veatch
    8400 Ward Parkway
    Kansas City, MO 64114
    (913) 339-2222, (913) 339-7677 (FAX)

20. Camp Dresser & Mckee Inc.
    One Cambridge Place - 50 Hampshire Street
    Cambridge, MA 02139
    (617) 452-6000, (617) 452-8000 (FAX)

21. Brown and Caldwell, Inc.
    3480 Buskirk Ave.
    Pleasant Hill, CA 94523
    (800) 727-2224, (925) 937-9026 (FAX)

22. Burns and McDonnell, Inc.
    9400 Ward Parkway
    Kansas City, MO 64114
    (816) 333-9400, (816) 333-3690 (FAX)

23. Dames and Moore Group
    911 Wilshire Blvd., Suite 700
    Los Angeles, CA 90017
    (213) 996-2200, (213) 996-2290 (FAX)

24. Durr Environmental, Inc.
    31285 Durr Drive
    Wixom, MI 48393
    (248) 668-5200, (248) 926-6570

25. Earth Tech.
    100 W. Broadway
    Suite 5000
    Long Beach, CA 90802
    (562) 951-2000, (562) 495-2825 (FAX)

26. Eckenfelder Inc.
    227 Ftrench Landing Rd.
    Nashville, TN 37228
    (615) 255-2288, (615) 256-8332 (FAX)

27. Ecopurification Systems, Inc.
    1450 South Rolling Rd.
    Baltimore, MD 21234
    (410) 455-5770, (410) 455-5777 (FAX)

28. Eimco Process Equipment
    P.O. Box 300
    Salt Lake City, UT 84110
    (801) 526-2000, (801) 526-2425 (FAX)

29. Enprotec
    4465 Limaburg Rd.
    Hebron, KY 41048
    (606) 689-4300, (606) 689-4322 (FAX)

31. ENSR
    35 Nagog Park
    Acton, MA 01720
    (508) 635-9500, (508) 635-9180 (FAX)

32. Envirogen, Inc.
    Princeton Research Center
    4100 Quakerbridge Rd.
    Lawrenceville, NJ 08648
    (609) 936-0075, (609) 936-0085 (FAX)

33. Environmental Science and Engineering, Inc.
    8901 N. Industrial Rd.
    Peoria, IL 61615-1510
    (309) 692-4422, (309) 692-9364 (FAX)

34. Envirosystems Supply, Inc.
    11820 N.W. 37th Street
    Coral Springs, FL 33065
    (954) 796-3390, (954) 796-3405 (FAX)

35. Foster Wheeler Environmental Corp.
    8 Peach Tree Hill Rd.
    Livingston, NJ 07039
    (923) 597-7028, (923) 597-7590 (FAX)

36. GE Infrastructure
    Trevose, Pennsylvania
    (215) 355-3300 (215) 953-5524

37. Millenium Science Engineering, Inc.
    1364 Beverly Rd, Suite 302
    McLean, VA 22101
    (703) 734-1090, (703) 734-1093 (FAX)

38. O'Brien & Gere
    5000 Brittonfield Parkway
    P.O. Box 4762
    Syracuse, NY 13221
    (315) 437-8800, (315) 463-7440 (FAX)

39. Parsons Engineering Science
    100 W. Walnut St. Suite T-922
    Pasadena, CA 91124
    (626) 440-6000, (626) 440-6177 (FAX)

40. Radian International
    P.O. Box 201088
    Austin, TX 78720-1088
    (512) 419-5065, (512) 419-5474 (FAX)

41. Stearns & Wheeler, Inc.
    1 Remington Park Drive
    Casanovia, NY 13035
    (315) 655-8161, (315) 655-4180 (FAX)

42. Malcolm Pirnie, Inc
    104 Corporate Park Drive
    White Plains, NY 10602
    (914) 694-2100, (914) 694-9286 (FAX)

43. Environmental Resources Management
    855 Springdale Drive
    Exton, PA 19341
    (800) 544-3117, (610) 524-7335 (FAX)

44. Woodward Clyde
    1501 4th Ave. Suite 1500
    Seattle, WA 98101
    (206) 343-7933, (206) 343-0513 (FAX)

45. CH_2M Hill
    6060 S. Willow Drive
    Greenwood Village, CO 80111-5142
    (303) 771-0900, (303) 846-2231 (FAX)

46. Roy F. Weston, Inc.
    1400 Weston Way
    P.O. Box 2653
    Westchester, PA 19380
    (610) 701-3000, 610) 701-3124 (FAX)

47. Westech Engineering, Inc.
    3625 South West Temple
    Salt Lake City, UT 84115
    (801) 265-1000, (801) 265-1080 (FAX)

48. International Resources Group
    1211 Connecticut Ave., Suite 700
    Washington DC 20036
    (202) 289-0100, (202) 289-7601 (FAX)

49. Chemonics International
    1133 20th St. NW, Suite 600
    Washington DC 20036
    (202) 955-3330, (202) 855-3400 (FAX)

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
Absorption Equipment	Treatment for organics in drinking water	Calgon Carbon Corp. Handex Environmental Recovery, Inc. Zimpro Environmental, Inc.
Aeration Equipment	Provide oxygen in water and wastewater treatment	Asdor, Ltd. Dorr-Oliver Inc. Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. General Filter Co. I. Kruger Inc. Infilco Degremont Inc. Parkson Corp. Philadelphia Mixers Corp. Smith & Loveless, Inc. Water Pollution Control Corp. Zimpro Environmental Inc.
Anaerobic Water Treatment Equipment	Sludge digestion and industrial wastewater treatment	CBI Walker, Inc. Dorr-Oliver Inc. Eimco Process Equipment Co. Enviroquip, Inc. Infilco Degremont Inc. Ralph B. Carter Co./Boschen Partners L.P. Smith & Loveless, Inc. Zimpro Environmental, Inc.
Blowers (Air)	Provide oxygen for water and wastewater treatment	Chicago Conveyor Corp. Dresser Industries, Inc., Roots Division The Spencer Turbine Co. MAC Equipment, Inc.
Bulk Material Handling Equipment	Solids handling, chemical handling	A.O. Smith Harvestore Products, Inc. Andritz Sprout-Bauer Chicago Conveyor Corp. Crown Holdings, Inc. MAC Equipment, Inc. Paul O. Abbe, Inc. Smith & Loveless, Inc. Zimpro Environmental, Inc.
Carbon, Activated	Treatment for organics in drinking water	Calgon Carbon Corporation Handex Environmental Recovery, Inc. Smith & Loveless, Inc. Zimpro Environmental, Inc.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
Centrifuges	Sludge dewatering	Dorr-Oliver Incorporated Tema Systems, Inc.
Chlorination Equipment	Disinfection for water and wastewater treatment	Bailey-Fischer & Porter Capital Controls co., Inc. Chlorinators Inc. Enviroquip, Inc. Pepcon Systems, Inc. Smith & Loveless, Inc. Wallace & Tiernan, Inc.
Clarifiers	Settling of suspended solids in water and wastewater treatment plants	CBI Walker, Inc. Dorr-Oliver Inc. Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. The F.B. Leopold Co. General Filter Co. Industrial Filter & Pump Infilco Degremont Inc. Kason Corp. Krofta Engineering Corp. Parkson Corp. Smith & Loveless, Inc. Water Pollution Control Corp. Zimpro Environmental, Inc.
Comminutors	Grinding of solids in wastewater treatment	Infilco Degremont, Inc. Ingersoll-Dresser Pump Co. JWC Environmental Smith & Loveless, Inc. Sturtevant, Inc.
Controls, Instrumentation	Instrumentation for water and wastewater treatment plants	Bailey-Fisher & Porter Capital Controls Company, Inc. Enviroquip, Inc. The F.B. Leopold Co. Gorman-Rupp Co. I. Kruger, Inc. ITT Flygt Corp. Liquid Metronics Inc. MAC Equipment, Inc. Wallace & Tiernan, Inc.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
Degritters	Remove abrasive solids as part of wastewater treatment	Dorr-Oliver Incorporated Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. Smith & Loveless, Inc. Sturtevant, Inc. Vulcan Industries, Inc.
Digesters	Sludge treatment	CBI Walker, Inc. Eimco Process Equipment Co. Enviroquip, Inc. I. Kruger, Inc. Dorr-Oliver Incorporated Infilco Degremont Inc. Ralph B. Carter Co./Boschen Partners L.P. Smith & Loveless, Inc. Zimpro Environmental, Inc.
Feed Systems, Chemical	Chemical handling systems	Bailer-Fischer & Porter Capital Controls Co., Inc. Crown Holdings, Inc. Enviroquip, Inc. Liquid Metronics Inc. MAC Equipment, Inc. Smith & Loveless, Inc. Wallace & Tiernan, Inc. Zimpro Environmental, Inc.
Filtration Equipment	Remove suspended solids for water and wastewater treatment	Andritz Sprout-Bauer Calgon Carbon Corp. CBI Walker, Inc. Dorr-Oliver Incorporated ECRACOM, Inc. Eimco Process Equipment Co. Enviroquip, Inc. General Filter Co. Industrial Filter & Pump Infilco Degremont Inc. Komline-Sanderson Krofta Engineering Corp. MAC Equipment, Inc. Parkson Corp. Smith & Loveless, Inc. The F.B. Leopold Co. Zimpro Environmental, Inc.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
Flocculators	Water treatment equipment	Dorr-Oliver Incorporated Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. General Filter Co. Infilco Degremont Inc. Philadelphia Mixers Corp. Ralph B. Carter Co./Boschen Partners L.P. Robbins & Myers, Inc. Smith & Loveless, Inc.
Flotation Systems	Remove suspended solids from water and wastewater	Dorr-Oliver Incorporated Eimco Process Equipment Co. Envirex Inc. Industrial Filter & Pump Infilco Degremont, Inc. Komline-Sanderson Krofta Engineering Corp. Smith & Loveless, Inc.
Grit Removal Equipment	Remove dense particulate from water and wastewater	Dorr-Oliver Incorporated Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. I. Kruger, Inc. Infilco Degremont, Inc. The Spencer Turbine Co.
Iron/Manganese Removal	Water treatment equipment	CBI Walker, Inc. Envirex Inc. General Filter Co. Infilco Degremont, Inc. Smith & Loveless, Inc.
Lime Slakers	pH adjustment, sludge conditions equipment	Dorr-Oliver Incorporated Eimco Process Equipment Co. Smith & Loveless, Inc. Wallace & Tiernan, Inc. Zimpro Environmental Inc.
Membranes	Removal of colloids form water and wastewater	Infilco Degremont Inc. Zimpro Environmental, Inc.
Mixers	Mixing of chemicals in water and wastewater	Andritz Sprout-Bauer Dorr-Oliver Inc. Eimco Process Equipment Co.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
		I. Kruger, Inc. Infilco Degremont, Inc. ITT Flygt Corp. Paul O. Abbe, Inc. Philadelphia Mixers Corp. Robbins & Myers, Inc.
Nutrient Removal Processes	Nitrogen and phosphorus removal from wastewaters	Dorr-Oliver Incorporated CBI Walker, Inc. Eimco Process Equipment Co. Envirex Inc. Envirozone Industries, Inc. Krofta Engineering Corp. Parkson Corp. Smith & Loveless, inc. Zimpro Environmental, Inc.
Odor Control	Contain sludge and treatment plant odors	Calgon Carbon Corporation Envirozone Industries, Inc. I. Kruger, Inc. NuTech Environmental Corp. Pepcon Systems, Inc. Smith & Loveless, Inc.
Ozone Systems	Disinfection and/or oxidation of drinking water	Capital Controls Co., Inc. Envirozone Industries, Inc. Infilco Degremont, Inc.
Presses	Sludge dewatering	Asdor Ltd. Eimco Process Equipment Co. Envirex, Inc. Enviroquip, Inc. Hycor Corporation Industrial Filter & Pump Infilco Degremont, Inc. Komline-Sanderson Parkson Corp. Ralph B. Carter Co./Boschen Partners L.P. Smith & Loveless, Inc. Zimpro Environmental Inc.
Pumping Equipment	Pumps for water or slurries	Asdor, Ltd. Aurora Pump Deming Pump Division, Crane Co. Dorr-Oliver Inc. Fairbanks Morse Pump Corp. ECRACOM, Inc.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
		Gorman-Rupp Co. Industrial Filter & Pump Ingersoll-Dresser Pump Co. ITT Flygt Corp. Komline-Sanderson Liquid Metronics Inc. PACO Pumps, Inc. Robbins & Myers, Inc. Smith & Loveless, Inc. Wallace & Tiernan, Inc. WEMCO Pump Zimpro Environmental Inc.
Screens	Remove large solid material from wastewater	Andritz Sprout-Bauer Dorr-Oliver Inc. Enviroquip, Inc. Hycor Corp. I. Kruger, Inc. Infilco Degremont, Inc. JWC Environmental Kason Corp. Krofta Engineering Corp. Parkson Corp. Smith & Loveless, Inc. Tema Systems, Inc. Vulcan Industries, Inc. Zimpro Environmental, Inc.
Sludge Treatment Equipment	Treat water or wastewater sludges	A.O. Smith Harvestore Products, Inc. CBI Walker, Inc. Dorr-Oliver Inc. Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. Infilco Degremont, Inc. Komline-Sanderson Krofta Engineering Corp. Pepcon Systems, Inc. Ralph B. Carter Co./Boschen Partners L.P. Smith & Loveless, Inc. Zimpro Environmental, Inc.
Tanks	Storage tanks for water, wastewater, chemicals, etc.	A.O. Smith Harvestore Products, Inc. CBI Walker, Inc. ECRACOM, Inc.

PARTIAL LISTING OF U.S. COMPANIES TO PROVIDE WATER SUPPLY AND POLLUTION CONTROL EQUIPMENT		
Equipment	**Application**	**U.S. Suppliers**
		Industrial Filter & Pump Liquid Metronics Inc. Piping Technology & Products, Inc. Smith & Loveless, Inc.
Water Treatment Plants	Drinking water or wastewater package treatment plants	Calgon Carbon Corporation CBI Walker, Inc. Eimco Process Equipment Co. Envirex Inc. Enviroquip, Inc. General Filter Co. Infilco Degremont, Inc. Krofta Engineering Corp. Smith & Loveless, Inc.

ANNEX 3

USTDA NATIONALITY REQUIREMENTS

U.S. TRADE AND DEVELOPMENT AGENCY
Arlington, VA 22209-2131

NATIONALITY, SOURCE, AND ORIGIN REQUIREMENTS

The purpose of USTDA's nationality, source, and origin requirements is to assure the maximum practicable participation of American contractors, technology, equipment and materials in the prefeasibility, feasibility, and implementation stages of a project.

USTDA STANDARD RULE (GRANT AGREEMENT STANDARD LANGUAGE):

Except as USTDA may otherwise agree, each of the following provisions shall apply to the delivery of goods and services funded by USTDA under this Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from host country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for implementation of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in host country are not subject to the above restrictions. USTDA will make available further details concerning these standards of eligibility upon request.

NATIONALITY:

1) Rule

Except as USTDA may otherwise agree, the Contractor for USTDA funded activities must be either a U.S. firm or a U.S. individual. Prime contractors may utilize U.S.

subcontractors without limitation, but the use of host country subcontractors is limited to 20% of the USTDA grant amount.

2) Application

Accordingly, only a U.S. firm or U.S. individual may submit proposals on USTDA funded activities. Although those proposals may include subcontracting arrangements with host country firms or individuals for up to 20% of the USTDA grant amount, they may not include subcontracts with third country entities. U.S. firms submitting proposals must ensure that the professional services funded by the USTDA grant, to the extent not subcontracted to host country entities, are supplied by employees of the firm or employees of U.S. subcontractor firms who are U.S. individuals.

Interested U.S. firms and consultants who submit proposals must meet USTDA nationality requirements as of the due date for the submission of proposals and, if selected, must continue to meet such requirements throughout the duration of the USTDA-financed activity. These nationality provisions apply to whatever portion of the Terms of Reference is funded with the USTDA grant.

3) Definitions

A "U.S. individual" is (a) a U.S. citizen, or (b) a non-U.S. citizen lawfully admitted for permanent residence in the U.S. (a green card holder).

A "U.S. firm" is a privately owned firm which is incorporated in the U.S., with its principal place of business in the U.S., and which is either (a) more than 50% owned by U.S. individuals, or (b) has been incorporated in the U.S. for more than three (3) years prior to the issuance date of the request for proposals; has performed similar services in the U.S. for that three (3) year period; employs U.S. citizens in more than half of its permanent full-time positions in the U.S.; and has the existing capability in the U.S. to perform the work in question.

A partnership, organized in the U.S. with its principal place of business in the U.S., may also qualify as a "U.S. firm" as would a joint venture organized or incorporated in the United States consisting entirely of U.S. firms and/or U.S. individuals.

A nonprofit organization, such as an educational institution, foundation, or association may also qualify as a "U.S. firm" if it is incorporated in the United States and managed by a governing body, a majority of whose members are U.S. individuals.

SOURCE AND ORIGIN:

1) Rule

In addition to the nationality requirement stated above, any goods (e.g., equipment and materials) and services related to their shipment (e.g., international transportation and insurance) funded under the USTDA Grant Agreement must have their source and origin in the United States, unless USTDA otherwise agrees. However, necessary purchases of goods and project support services which are unavailable from a U.S. source (e.g., local food, housing and transportation) are eligible without specific USTDA approval.

2) Application

Accordingly, the prime contractor must be able to demonstrate that all goods and services purchased in the host country to carry out the Terms of Reference for a USTDA Grant Agreement that were not of U.S. source and origin were unavailable in the United States.

3) Definitions

"Source" means the country from which shipment is made.

"Origin" means the place of production, through manufacturing, assembly or otherwise.

Questions regarding these nationality, source and origin requirements may be addressed to the USTDA Office of General Counsel.

ANNEX 4

USTDA GRANT AGREEMENT, INCLUDING MANDATORY CONTRACT CLAUSES

2010-51028A

GRANT AGREEMENT

This Grant Agreement is entered into between the Government of the United States of America, acting through the U.S. Trade and Development Agency ("USTDA"), and the Government of Belize, acting through the Ministry of Finance ("Grantee"). USTDA agrees to provide the Grantee under the terms of this Agreement US$385,000 ("USTDA Grant") to fund the cost of goods and services required for a feasibility study ("Study") on the proposed IDB Placencia Peninsula Pilot Wastewater Management System project ("Project") in Belize ("Host Country").

PDF: NY KE IS JJ MB SS RY

CS: PD LZ JW

1. USTDA Funding

The funding to be provided under this Grant Agreement shall be used to fund the costs of a contract between the Grantee and the U.S. firm selected by the Grantee ("Contractor") under which the Contractor will perform the Study ("Contract"). Payment to the Contractor will be made directly by USTDA on behalf of the Grantee with the USTDA Grant funds provided under this Grant Agreement.

2. Terms of Reference

The Terms of Reference for the Study ("Terms of Reference") are attached as Annex I and are hereby made a part of this Grant Agreement. The Study will examine the technical, financial, environmental, and other critical aspects of the proposed Project. The Terms of Reference for the Study shall also be included in the Contract.

3. Standards of Conduct

USTDA and the Grantee recognize the existence of standards of conduct for public officials, and commercial entities, in their respective countries. The parties to this Grant Agreement and the Contractor shall observe these standards, which include not accepting payment of money or anything of value, directly or indirectly, from any person for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study.

4. Grantee Responsibilities

The Grantee shall undertake its best efforts to provide reasonable support for the Contractor, such as local transportation, office space, and secretarial support.

5. USTDA as Financier

(A) USTDA Approval of Competitive Selection Procedures

Selection of the U.S. Contractor shall be carried out by the Grantee according to its established procedures for the competitive selection of contractors with advance notice of the procurement published online through *Federal Business Opportunities (www.fedbizopps.gov)*. Upon request, the Grantee will submit these contracting procedures and related documents to USTDA for information and/or approval.

(B) USTDA Approval of Contractor Selection

The Grantee shall notify USTDA at the address of record set forth in Article 17 below upon selection of the Contractor to perform the Study. Upon approval of this selection by USTDA, the Grantee and the Contractor shall then enter into a contract for performance of the Study. The Grantee shall notify in writing the U.S. firms that submitted unsuccessful proposals to perform the Study that they were not selected.

(C) USTDA Approval of Contract Between Grantee and Contractor

The Grantee and the Contractor shall enter into a contract for performance of the Study. This contract, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing. To expedite this approval, the Grantee (or the Contractor on the Grantee's behalf) shall transmit to USTDA, at the address set forth in Article 17 below, a photocopy of an English language version of the signed contract or a final negotiated draft version of the contract.

(D) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of the contract and any amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of funding the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Grantee or USTDA from asserting any right they might have against the

Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Grantee or USTDA.

(E) Grant Agreement Controlling

Regardless of USTDA approval, the rights and obligations of any party to the contract or subcontract thereunder must be consistent with this Grant Agreement. In the event of any inconsistency between the Grant Agreement and any contract or subcontract funded by the Grant Agreement, the Grant Agreement shall be controlling.

6. Disbursement Procedures

(A) USTDA Approval of Contract Required

USTDA will make disbursements of Grant funds directly to the Contractor only after USTDA approves the Grantee's contract with the Contractor.

(B) Contractor Invoice Requirements

The Grantee should request disbursement of funds by USTDA to the Contractor for performance of the Study by submitting invoices in accordance with the procedures set forth in the USTDA Mandatory Clauses in Annex II.

7. Effective Date

The effective date of this Grant Agreement ("Effective Date") shall be the date of signature by both parties or, if the parties sign on different dates, the date of the last signature.

8. Study Schedule

(A) Study Completion Date

The completion date for the Study, which is December 31, 2011, is the date by which the parties estimate that the Study will have been completed.

(B) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this Grant Agreement for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

9. USTDA Mandatory Clauses

All contracts funded under this Grant Agreement shall include the USTDA mandatory clauses set forth in Annex II to this Grant Agreement. All subcontracts funded or partially funded with USTDA Grant funds shall include the USTDA mandatory clauses, except for clauses B(1), G, H, I, and J.

10. Use of U.S. Carriers

(A) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(B) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

11. Nationality, Source, and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

12. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in Host Country. Neither the Grantee nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees, or other levies.

13. Cooperation Between Parties and Follow-Up

The parties will cooperate to assure that the purposes of the Grant Agreement are accomplished. For five (5) years following receipt by USTDA of the Final Report (as defined in Clause I of Annex II), the Grantee agrees to respond to any reasonable inquiries from USTDA about the status of the Project.

14. Implementation Letters

To assist the Grantee in the implementation of the Study, USTDA may, from time to time, issue implementation letters that will provide additional information about matters covered by the Grant Agreement. The parties may also use jointly agreed upon implementation letters to confirm and record their mutual understanding of matters covered by the Grant Agreement.

15. Recordkeeping and Audit

The Grantee agrees to maintain books, records, and other documents relating to the Study and the Grant Agreement adequate to demonstrate implementation of its responsibilities under the Grant Agreement, including the selection of contractors, receipt and approval of contract deliverables, and approval or disapproval of contractor invoices for payment by USTDA. Such books, records, and other documents shall be separately maintained for three (3) years after the date of the final disbursement by USTDA. The Grantee shall afford USTDA or its authorized representatives the opportunity at reasonable times to review books, records, and other documents relating to the Study and the Grant Agreement.

16. Representation of Parties

For all purposes relevant to the Grant Agreement, the Government of the United States of America will be represented by the U.S. Ambassador to Host Country or USTDA and Grantee will be represented by the Minister of Finance. The parties hereto may, by written notice, designate additional representatives for all purposes under the Grant Agreement.

17. Addresses of Record for Parties

Any notice, request, document, or other communication submitted by either party to the other under the Grant Agreement shall be in writing or through a wire or electronic medium which produces a tangible record of the transmission, such as a telegram, cable, or facsimile, and will be deemed duly given or sent when delivered to such party at the following:

To: Ministry of Finance
New Administration Building
Belmopan
BELIZE

Phone: + (501) 822-2362
Fax: + (501) 822-2886

To: U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

All such communications shall be in English, unless the parties otherwise agree in writing. In addition, the Grantee shall provide the Commercial Section of the U.S. Embassy in Host Country with a copy of each communication sent to USTDA.

Any communication relating to this Grant Agreement shall include the following fiscal data:

Appropriation No.:	1110/111001
Activity No.:	2010-51028A
Reservation No.:	2010510032
Grant No.:	GH2010510009

18. Termination Clause

Either party may terminate the Grant Agreement by giving the other party thirty (30) days advance written notice. The termination of the Grant Agreement will end any obligations of the parties to provide financial or other resources for the Study, except for payments which they are committed to make pursuant to noncancellable commitments entered into with third parties prior to the written notice of termination.

19. Non-waiver of Rights and Remedies

No delay in exercising any right or remedy accruing to either party in connection with the Grant Agreement shall be construed as a waiver of such right or remedy.

20. U.S. Technology and Equipment

By funding this Study, USTDA seeks to promote the Project objectives of the Host Country through the use of U.S. technology, goods, and services. In recognition of this purpose, the Grantee agrees that it will allow U.S. suppliers to compete in the procurement of technology, goods, and services needed for Project implementation.

[THE REMAINDER OF THIS PAGE IS INTENTIONALLY LEFT BLANK]

IN WITNESS WHEREOF, the Government of the United States of America and the Government of Belize, each acting through its duly authorized representative, have caused this Agreement to be signed in the English language in their names and delivered as of the day and year written below. In the event that this Grant Agreement is signed in more than one language, the English language version shall govern.

For the Government of the United States of America

By: _____

Date: 9/8/10

Witnessed:

By: _____

For the Government of Belize

By: _____

Date: 9/8/2010

Witnessed:

By: _____

Office of the Prime Minister
Belmopan, Belize C.A.

Annex I -- Terms of Reference

Annex II -- USTDA Mandatory Clauses

Annex I

Terms of Reference

Objective and Background

The objective of the feasibility study ("Study") for the IDB Placencia Peninsula Pilot Wastewater Management System Project ("Project") is to provide a roadmap and guidelines for the implementation of a pilot wastewater management system for the Placencia Peninsula.

This Study is one of two activities brought to USTDA by the Inter-American Development Bank ("IDB") for consideration in connection with the Caribbean Regional Fund for Wastewater Management ("CReW"), which is financed and managed by the IDB, in partnership with the Global Environment Facility and the United Nations Environment Program. The CReW seeks to test innovative financing approaches to support the development of wastewater management projects throughout the Caribbean, beginning with the implementation of five pilot projects. The other USTDA activity associated with the CReW, a technical assistance the rehabilitation of priority wastewater facilities in Jamaica, is the subject of a separate USTDA Grant Agreement.

General Considerations for Deliverables and Documents

The Contractor shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Ministry of Finance ("Grantee") to ensure readability, accuracy, and consistency. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor's work on the Study and to ensure that the Contractor's findings are acceptable to the Grantee before critical decisions are made on the Study. The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Data Collection and Review

The demographic and land-use characteristics of the Placencia Peninsula require that there be a detailed evaluation of the location and nature of wastewater sources throughout the Placencia Peninsula region. As a result, the Contractor shall:

1.1 Acquire from the all applicable government agencies in Belize, all studies, engineering design documentation, wastewater generation and water quality data, operational data, and environmental regulatory documents relative to wastewater generation, collection, and treatment in the Placencia Peninsula region. At a minimum, this shall include the preliminary feasibility analysis conducted by Engineers Without Borders in 2006 for defining wastewater management in the Placencia Peninsula region.

1.2 Coordinate and participate in regular meetings with the assigned government representative to share findings and obtain feedback on Study progress and issues as they arise.

1.3 Utilize the data and information collected to identify outstanding data needs in order to complete the Study.

1.4 Determine all statutory and regulatory requirements relevant to the Project, including all laws and regulations that pertain to the design and implementation of the collection, treatment, and discharge of wastewater to receiving waters in Belize, as well as international norms.

Deliverable #1:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 1. Specifically, the Contractor shall develop a database of existing information relevant to Project implementation including, but not limited to, the following:

- Existing design/pre-design documents and any other technical data;
- Existing reports;
- Existing studies on population growth (fix and floating), water demand, expansion areas, and land use; and
- Regulatory requirements and any other information important to assessing wastewater collection, treatment, and discharge requirements in the Placencia Peninsula region, including a detailed list of parameters and the entity responsible for its enforcement. The Protocol Concerning Pollution from Land-Based Sources and Activities to the United Nations Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region shall also be used as a guide.

Task 2: Potable Water Source Investigation and Characterization

The Contractor shall define and characterize all available sources of potable water used for residential and commercial purposes on the Placencia Peninsula in order to further investigate the magnitude of wastewater generation on the Placencia Peninsula. The Contractor shall:

2.1 Define all potable water sources for current and projected land use on the Placencia Peninsula, including any water provided by 1) the Government of Belize through piping from locations outside of the Placencia Peninsula; 2) the Placencia Peninsula and Seine Bight Water Boards; and 3) other private sector entities on the Placencia Peninsula.

2.2 Based on annual reports and financial records of the Placencia Peninsula and Seine Bight Water Boards, and based on a survey of water users on the Placencia Peninsula that obtain water from others sources, determine current and historical water consumption at major wastewater sources on the Placencia Peninsula including existing community/village areas and the major resorts.

Task 3: Wastewater Sources Analysis

The Contractor shall identify and evaluate the current and future sources of wastewater in the Placencia Peninsula region in order to determine any unique characteristics that may affect the ultimate design of the collection and treatment works developed through the Project. The Contractor shall:

3.1 Identify and evaluate existing residential and commercial generators of wastewater for collection and treatment, including seasonal wastewater generation variations and any other issues that may influence the design of an effective wastewater management system. This shall include: 1) the identification of the existing wastewater treatment facilities owned and operated by resorts and other commercial establishments on the Placencia Peninsula; 2) the initial capital costs and current operational costs of these facilities; and 3) the date the facilities were placed in operation and their current means of wastewater management. Any proposed resort areas (including expansion of existing resorts) shall also be evaluated to determine proposed wastewater management practices.

3.2 Identify and evaluate clustered wastewater generator areas, such as the two communities, to determine whether separate wastewater management systems can be developed to individually serve these clustered areas. In addition, identify the projected future wastewater generation rate over a 25-year period.

3.3 Determine the quantity of wastewater to be collected and treated, including average and peak demands/seasonal variations for all resorts on the Placencia Peninsula.

3.4 Determine the areas and regions of the Placencia Peninsula from which wastewater might be economically collected by a regional collection system (that would be expanded to the mainland where the wastewater facility will be located), including consideration of 1) a centralized collection and treatment system serving the entire Placencia Peninsula; 2) centralized systems serving specific portions of the Placencia Peninsula, such as the villages; and 3) decentralized systems for resorts and individual residential/commercial generators. In addition, this evaluation shall also include mainland areas (such as the village of Independencia) outside of the Placencia Peninsula where a wastewater treatment facility serving the Placencia Peninsula may be located.

3.5 Define target wastewater treatment standards based on existing laws and regulations in Belize and on sustainable and established international sound practice standards applicable to the region.

3.6 Identify the necessary approvals and permits to be obtained for wastewater treatment and discharge infrastructure and determine any issues related to obtaining such permits.

3.7 Identify currently undeveloped areas that may be served by a future expansion of the Project.

Deliverable #2:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Tasks 2 and 3. Specifically, the Contractor shall prepare an inventory

and analysis of existing and future wastewater generators including, but not limited to, community, residential, and commercial (such as resorts) sources. The inventory shall include an identification of existing or pending regulatory requirements and necessary permits, and shall include an identification of the potential generators of hazardous liquid waste and their current practices for disposal.

Task 4: Wastewater Collection Analysis

The Contractor shall:

4.1 Describe the soil quality and its permeability profile.

4.2 Define the feasibility of operating a conventional sewer system, including gravity sewers, pumping stations, and trunk sewers considering permeability of the soil, aquifer conditions, water sources, contamination risks, and estimated costs. This shall include a general concept design of main sewers in order to have an estimate of diameter, length, and need of pumping stations. A cost estimate shall be made with these assumptions and flow estimates shall include infiltration and rainfall flows.

4.3 Evaluate the applicability of alternative wastewater collection technologies and approaches to serve the Placencia Peninsula as a whole or to serve areas with clustered wastewater generators (such as the communities). The Contractor shall specifically consider the systems recommended in the preliminary feasibility analysis conducted by Engineers Without Borders in 2006.

Deliverable #3:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 4. Specifically, the Contractor shall prepare an assessment of alternative wastewater collection systems for the Placencia Peninsula region based on the physical characteristics, flows generated, available technology, applicability, and costs (investment, operation, and maintenance) to determine the most feasible option for a sewage collection system.

Task 5: Wastewater Treatment Technologies Evaluation

The Contractor shall evaluate wastewater treatment technologies that can comply with target performance standards in effect in Belize at the time of the Study and to international sound practice standards. At a minimum, the Contractor shall:

5.1 Identify and evaluate technologies for the treatment of wastewater at the residential, community, and Placencia Peninsula-wide level to meet the target effluent quality for discharge.

5.2 Identify all potentially viable treatment alternatives and sites based on effectiveness, implementability, sustainability, and cost (this may include mainland sites off of the Placencia Peninsula). Treatment options shall include sludge treatment and disposal.

5.3 Consider treatment alternatives that would allow the use of technologies and treatment approaches that are available in Belize or in conjunction with imported technologies.

5.4 Identify decentralized approaches to wastewater management that may be viable for individual residences and other small quantity generators in isolated locations throughout the Placencia Peninsula.

5.5 Determine the potential sources for all materials that may be required for development of community or Placencia Peninsula-wide collection and treatment systems. Develop a list of prospective U.S. sources of supply of the technologies viewed to be viable for the Project that must be imported. Business name, point of contact, address, telephone, and fax numbers shall be included for each commercial source.

Deliverable #4:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 5. Specifically, the Contractor shall prepare an evaluation of viable and sustainable technologies that are capable of effectively treating wastewater generated within the Placencia Peninsula region. At a minimum, this evaluation shall include an assessment of both primary and secondary treatment processes for centralized community or Placencia Peninsula-wide treatment systems, as well as decentralized systems that may be viable for individual residences, commercial establishments, and major resorts. All individual solutions must include a sludge management program, including collections and disposal, if applicable.

Task 6: Economic Analysis

The Contractor shall conduct a detailed economic evaluation of potentially viable alternatives identified in previous tasks. At a minimum, the Contractor shall:

6.1 Prepare detailed cost estimates of the potentially favorable technologies based on capital expenditures (and re-investment cost separate for civil and electro-mechanical works) and operating/maintenance expenditures for a period of 20 years separately for the sewer network and the wastewater treatment plant. This analysis shall include consideration of all possible alternatives for cost recovery from fees to be collected from wastewater generators. In addition, a present worth analysis shall be prepared for cost comparisons of technical alternatives.

6.2 Identify the most favorable alternatives, based on both technical and economic cost effectiveness and sustainability, as well as prevailing conditions in Belize and on the Placencia Peninsula. This shall include potential costs and revenues that may be derived through use of any off-Placencia Peninsula location by wastewater sources that may be located near a mainland treatment location. This exercise shall also include at least three scenarios with different collection rates, connectivity of clients, cost fluctuation, and tariff levels.

6.3 Perform a detailed evaluation of the most suitable alternatives, and with the assistance of the Project stakeholders (including Belize Water Services Limited and the IDB), select the recommended alternative for a wastewater collection and

treatment system to serve the Placencia Peninsula. Criteria to be used in this evaluation and selection process shall include expected effectiveness and reliability, environmental mitigation, implementability and constructability, affordability, expandability, operational considerations, ability to be phased, sustainability, and life cycle costs.

6.4 Based on an assessment of customers served by the selected alternative, evaluate the tariff levels necessary to obtain full costs recovery for the wastewater collection and treatment system. This analysis shall consider capacity to assess fees, willingness to pay, cross subsidy tariff systems, and special charges for resorts based on an occupancy fee.

6.5 Evaluate and define potential phasing of the Project's infrastructure and technical development to conform or correlate to possible limitations in financial resources to fully implement the Project.

Deliverable #5:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 6. Specifically, the Contractor shall develop cost estimates and an economic model aimed at assessing initial and life cycle costs associated with the recommended alternatives for collecting and treating wastewater within the Placencia Peninsula region. The model shall include tariff setting recommendations and schemes that achieve full cost recovery in the most socially-sustainable manner. The model shall, at a minimum, present all economic aspects (near-term and long-term) of the selected wastewater collection and treatment system.

Task 7: Conceptual Design Development

Based on the economic analysis and technical definition of the wastewater collection and treatment alternatives, the Grantee shall advise Contractor as to the selected alternative. The Contractor shall then develop a conceptual design of the selected wastewater collection and treatment system and its individual infrastructure components. The conceptual design shall suggest, when possible, prospective U.S. technologies and U.S. sources of supply that fulfill the technical needs of the Project. Business name, point of contact, address, telephone, and fax numbers shall be included for each commercial source. The Contractor shall:

7.1 Develop a detailed technical definition of the selected wastewater collection and treatment system and its individual component facilities and systems.

7.2 Prepare conceptual designs of the selected wastewater collection and treatment system components. Elements to be presented shall include, at a minimum, a preliminary graphical layout of the proposed facilities, hydraulic profile, preliminary design report, process flow schematics, and component details/specifications that clearly illustrate the intended components of the collection and treatment infrastructure. The conceptual design shall consider potential future expansion of the Project to serve currently undeveloped areas.

7.3 Develop a preliminary Project institutional management plan presenting requirements for accomplishing the design, construction, operation, and

maintenance of the selected wastewater collection and treatment system. At a minimum, this shall define the following aspects:

- Organizational chart with position and task descriptions for individuals and units;
- Identification of any administration facilities needed; and
- Budgeting.

Deliverable #6:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 7. Specifically, the Contractor shall prepare a detailed conceptual design of the selected wastewater collection and treatment system establishing, at a minimum, preliminary technical design criteria and specifications of all major components associated with collection, treatment, and discharge components of the selected wastewater collection and treatment system. The Contractor shall develop a management plan for implementing the various elements of the Project.

Task 8: Preliminary Environmental Analysis

The Contractor shall conduct a preliminary review of the Project's environmental impact with reference to local requirements and those of multilateral development banks (such as the World Bank and the IDB). This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment in anticipation of the Project moving forward to the implementation stage. Specifically, the Contractor shall:

8.1 Conduct a preliminary environmental impact evaluation of the selected wastewater collection and treatment system, including the discharge system and the site selected.
8.2 Prepare recommendations for mitigating any negative environmental impacts of the selected wastewater collection and treatment system.
8.3 Prepare a preliminary community consultation plan.
8.4 Prepare a preliminary monitoring plan.
8.5 Prepare a preliminary emergency response plan.

Deliverable #7:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 8. Specifically, the Contractor shall prepare a preliminary environmental impact analysis of the selected wastewater collection and treatment system, including both near-term construction environmental impacts, as well as long-term environmental impacts associated with the development of a wastewater management system throughout the Placencia Peninsula.

Task 9: Developmental Impact Assessment

For the benefit of those interested in the Project, the Contractor shall assess the development benefits associated with the Project and the methodology for measuring

those benefits. The assessment shall include examples of the development benefits that would be expected in the Host Country if the Project is implemented as outlined in the Study. The Contractor shall focus on examples from the categories listed below and shall develop a methodology for assessing these impacts over time. The Contractor shall only list benefits in the categories that are applicable to the Project. The categories to be considered are as follows:

- *Infrastructure*: Recommended wastewater-related infrastructure improvements, modernization, or expansions.
- *Market-Oriented Reform*: Recommended regulations, laws, or institutional changes and the anticipated impact they would have if implemented.
- *Human Capacity Building*: The number and type of jobs that would be needed to implement, manage, and operate the Project, as well as the number of people who are anticipated to receive training.
- *Technology Transfer and Productivity Improvement*: Productivity improvements and technology transfers associated with Project implementation, such as new wastewater-related technologies or equipment.
- *Other*: Any other developmental benefits of the Project, including enhanced revenues and any spin-off or demonstration effects, such as the replication of unique technical or financial approaches in managing other similar wastewater conditions in Belize or other countries in the region.

Deliverable #8:
The Contractor shall prepare and deliver to the Grantee a developmental impact assessment, including all work performed under Task 9.

Task 10: Implementation Plan and Schedule

The Contractor shall develop an implementation plan to accomplish the individual tasks defined in the conceptual design. The implementation plan shall include procedures required to accomplish final design and permitting of all recommended component facilities. The Contractor shall also include a Project implementation schedule to measure the pace of progress in implementing the Project. At a minimum, the Contractor shall:

10.1 Identify all required additional work to accomplish final design and permitting for the required physical components of the selected wastewater collection and treatment system.

10.2 Develop an implementation plan presenting the resources and procedures required for final design, permitting, financing, constructing, and implementing the recommended facilities defined in the conceptual design. If required due to financial limitations and the overall cost of required infrastructure, the implementation plan will provide recommendations for Project implementation phasing, including the potential future expansion of the Project to serve currently undeveloped areas.

10.3 Develop an implementation schedule (including development phasing) for all system components based on the probable implementation and financing

activities. In developing the implementation schedule, consideration shall be given to phased construction to allow critical components to be placed in service on an accelerated schedule or to meet limitations that may result from the availability of financial resources.

10.4 Develop a budget for each component of the implementation plan.

10.5 Develop a draft terms of reference for the completion of the design of the selected wastewater collection and treatment system.

Deliverable #9:
The Contractor shall prepare and deliver to the Grantee an implementation plan and schedule, including all work performed under Task 10.

Task 11: Financial Plan

Based on the conceptual design and on the projected capital costs of the selected wastewater collection and treatment system, the Contractor shall develop a financial plan based on the IDB's plan for establishing the pilot prototype financial mechanism as part of the CReW. This financial plan shall include the means by which the Project will be financed, including financial sources that would support the export of U.S. equipment to Belize. The Contractor shall:

11.1 Develop a financing plan for implementation of all system components based on the CReW approach and on any Project implementation phasing that may be due to the limitations associated with available financial resources.

11.2 Evaluate the means by which prospective U.S. sources of supply can participate in the likely procurement process established for Project implementation.

Deliverable #10:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 11. Specifically, the Contractor shall prepare a financial plan providing the basis by which financial resources can be secured for Project implementation through the CReW. The financial plan shall include the criteria, conditions, and requirements that need to be met to allow for Project implementation support from key financial institutions.

Task 12: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

Notes:

(1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

(2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.

(3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

Annex II

USTDA Mandatory Contract Clauses

A. USTDA Mandatory Clauses Controlling

The parties to this contract acknowledge that this contract is funded in whole or in part by the U.S. Trade and Development Agency ("USTDA") under the Grant Agreement between the Government of the United States of America acting through USTDA and the Government of Belize acting through the Ministry of Finance ("Client"), dated _____ ("Grant Agreement"). The Client has selected _____ ("Contractor") to perform a feasibility study ("Study ") for the IDB Placencia Peninsula Wastewater Management System project ("Project") in Belize ("Host Country"). Notwithstanding any other provisions of this contract, the following USTDA mandatory contract clauses shall govern. All subcontracts entered into by Contractor funded or partially funded with USTDA Grant funds shall include these USTDA mandatory contract clauses, except for clauses B(1), G, H, I, and J. In addition, in the event of any inconsistency between the Grant Agreement and any contract or subcontract thereunder, the Grant Agreement shall be controlling.

B. USTDA as Financier

(1) USTDA Approval of Contract

All contracts funded under the Grant Agreement, and any amendments thereto, including assignments and changes in the Terms of Reference, must be approved by USTDA in writing in order to be effective with respect to the expenditure of USTDA Grant funds. USTDA will not authorize the disbursement of USTDA Grant funds until the contract has been formally approved by USTDA or until the contract conforms to modifications required by USTDA during the contract review process.

(2) USTDA Not a Party to the Contract

It is understood by the parties that USTDA has reserved certain rights such as, but not limited to, the right to approve the terms of this contract and amendments thereto, including assignments, the selection of all contractors, the Terms of Reference, the Final Report, and any and all documents related to any contract funded under the Grant Agreement. The parties hereto further understand and agree that USTDA, in reserving any or all of the foregoing approval rights, has acted solely as a financing entity to assure the proper use of United States Government funds, and that any decision by USTDA to exercise or refrain from exercising these approval rights shall be made as a financier in the course of financing the Study and shall not be construed as making USTDA a party to the contract. The parties hereto understand and agree that USTDA may, from time to time, exercise the foregoing approval rights, or discuss matters related to these rights and the Project with the parties to the contract or any subcontract, jointly or separately, without thereby incurring any responsibility

or liability to such parties. Any approval or failure to approve by USTDA shall not bar the Client or USTDA from asserting any right they might have against the Contractor, or relieve the Contractor of any liability which the Contractor might otherwise have to the Client or USTDA.

C. Nationality, Source, and Origin

Except as USTDA may otherwise agree, the following provisions shall govern the delivery of goods and services funded by USTDA under the Grant Agreement: (a) for professional services, the Contractor must be either a U.S. firm or U.S. individual; (b) the Contractor may use U.S. subcontractors without limitation, but the use of subcontractors from Host Country may not exceed twenty percent (20%) of the USTDA Grant amount and may only be used for specific services from the Terms of Reference identified in the subcontract; (c) employees of U.S. Contractor or U.S. subcontractor firms responsible for professional services shall be U.S. citizens or non-U.S. citizens lawfully admitted for permanent residence in the U.S.; (d) goods purchased for performance of the Study and associated delivery services (e.g., international transportation and insurance) must have their nationality, source, and origin in the United States; and (e) goods and services incidental to Study support (e.g., local lodging, food, and transportation) in Host Country are not subject to the above restrictions. USTDA will make available further details concerning these provisions upon request.

D. Recordkeeping and Audit

The Contractor and subcontractors funded under the Grant Agreement shall maintain, in accordance with generally accepted accounting procedures, books, records, and other documents, sufficient to reflect properly all transactions under or in connection with the contract. These books, records, and other documents shall clearly identify and track the use and expenditure of USTDA funds, separately from other funding sources. Such books, records, and documents shall be maintained during the contract term and for a period of three (3) years after final disbursement by USTDA. The Contractor and subcontractors shall afford USTDA, or its authorized representatives, the opportunity at reasonable times for inspection and audit of such books, records, and other documentation.

E. U.S. Carriers

(1) Air

Transportation by air of persons or property funded under the Grant Agreement shall be on U.S. flag carriers in accordance with the Fly America Act, 49 U.S.C. 40118, to the extent service by such carriers is available, as provided under applicable U.S. Government regulations.

(2) Marine

Transportation by sea of property funded under the Grant Agreement shall be on U.S. carriers in accordance with U.S. cargo preference law.

F. Workman's Compensation Insurance

The Contractor shall provide adequate Workman's Compensation Insurance coverage for work performed under this Contract.

G. Reporting Requirements

The Contractor shall advise USTDA by letter as to the status of the Project on March 1st annually for a period of two (2) years after completion of the Study. In addition, if at any time the Contractor receives follow-on work from the Client, the Contractor shall so notify USTDA and designate the Contractor's contact point including name, telephone, and fax number. Since this information may be made publicly available by USTDA, any information which is confidential shall be designated as such by the Contractor and provided separately to USTDA. USTDA will maintain the confidentiality of such information in accordance with applicable law.

H. Disbursement Procedures

(1) USTDA Approval of Contract

Disbursement of Grant funds will be made only after USTDA approval of this contract. To make this review in a timely fashion, USTDA must receive from either the Client or the Contractor a photocopy of an English language version of a signed contract or a final negotiated draft version to the attention of the General Counsel's office at USTDA's address listed in Clause M below.

(2) Payment Schedule Requirements

A payment schedule for disbursement of Grant funds to the Contractor shall be included in this Contract. Such payment schedule must conform to the following USTDA requirements: (1) up to twenty percent (20%) of the total USTDA Grant amount may be used as a mobilization payment; (2) all other payments, with the exception of the final payment, shall be based upon contract performance milestones; and (3) the final payment may be no less than fifteen percent (15%) of the total USTDA Grant amount, payable upon receipt by USTDA of an approved Final Report in accordance with the specifications and quantities set forth in Clause I below. Invoicing procedures for all payments are described below.

(3) Contractor Invoice Requirements

USTDA will make all disbursements of USTDA Grant funds directly to the Contractor. The Contractor must provide USTDA with an ACH Vendor Enrollment Form (available from USTDA) with the first invoice. The Client shall request disbursement of funds by USTDA to the Contractor for performance of the contract by submitting the following to USTDA:

(a) Contractor's Invoice

The Contractor's invoice shall include reference to an item listed in the Contract payment schedule, the requested payment amount, and an appropriate certification by the Contractor, as follows:

(i) For a mobilization payment (if any):

"As a condition for this mobilization payment, the Contractor certifies that it will perform all work in accordance with the terms of its Contract with the Client. To the extent that the Contractor does not comply with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(ii) For contract performance milestone payments:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(iii) For final payment:

"The Contractor has performed the work described in this invoice in accordance with the terms of its contract with the Client and is entitled to payment thereunder. Specifically, the Contractor has submitted the Final Report to the Client, as required by the Contract, and received the Client's approval of the Final Report. To the extent the Contractor has not complied with the terms and conditions of the Contract, including the USTDA mandatory provisions contained therein, it will, upon USTDA's request, make an appropriate refund to USTDA."

(b) Client's Approval of the Contractor's Invoice

(i) The invoice for a mobilization payment must be approved in writing by the Client.

(ii) For contract performance milestone payments, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and the terms and conditions of the USTDA Grant Agreement."

(iii) For final payment, the following certification by the Client must be provided on the invoice or separately:

"The services for which disbursement is requested by the Contractor have been performed satisfactorily, in accordance with applicable Contract provisions and terms and conditions of the USTDA Grant Agreement. The Final Report submitted by the Contractor has been reviewed and approved by the Client."

(c) USTDA Address for Disbursement Requests

Requests for disbursement shall be submitted by courier or mail to the attention of the Finance Department at USTDA's address listed in Clause M below.

(4) Termination

In the event that the Contract is terminated prior to completion, the Contractor will be eligible, subject to USTDA approval, for reasonable and documented costs which have been incurred in performing the Terms of Reference prior to termination, as well as reasonable wind down expenses. Reimbursement for such costs shall not exceed the total amount of undisbursed Grant funds. Likewise, in the event of such termination, USTDA is entitled to receive from the Contractor all USTDA Grant funds previously disbursed to the Contractor (including but not limited to mobilization payments) which exceed the reasonable and documented costs incurred in performing the Terms of Reference prior to termination.

I. USTDA Final Report

(1) Definition

"Final Report" shall mean the Final Report described in the attached Annex I Terms of Reference or, if no such "Final Report" is described therein, "Final Report" shall mean a substantive and comprehensive report of work performed in accordance with the attached Annex I Terms of Reference, including any documents delivered to the Client.

(2) Final Report Submission Requirements

The Contractor shall provide the following to USTDA:

(a) One (1) complete version of the Final Report for USTDA's records. This version shall have been approved by the Client in writing and must be in the English language. It is the responsibility of the Contractor to ensure that confidential information, if any, contained in this version be clearly marked. USTDA will maintain the confidentiality of such information in accordance with applicable law.

and

(b) One (1) copy of the Final Report suitable for public distribution ("Public Version"). The Public Version shall have been approved by the Client in writing and must be in the English language. As this version will be available for public distribution, it must not contain any confidential information. If the report in (a) above contains no confidential information, it may be used as the Public Version. In any event, the Public Version must be informative and contain sufficient Project detail to be useful to prospective equipment and service providers.

and

(c) Two (2) CD-ROMs, each containing a complete copy of the Public Version of the Final Report. The electronic files on the CD-ROMs shall be submitted in a commonly accessible read-only format. As these CD-ROMs will be available for public distribution, they must not contain any confidential information. It is the responsibility of the Contractor to ensure that no confidential information is contained on the CD-ROMs.

The Contractor shall also provide one (1) copy of the Public Version of the Final Report to the Foreign Commercial Service Officer or the Economic Section of the U.S. Embassy in Host Country for informational purposes.

(3) Final Report Presentation

All Final Reports submitted to USTDA must be paginated and include the following:

(a) The front cover of every Final Report shall contain the name of the Client, the name of the Contractor who prepared the report, a report title, USTDA's logo, and USTDA's mailing and delivery addresses. If the complete version of the Final Report contains confidential information, the Contractor shall be responsible for labeling the front cover of that version of the Final Report with the term "Confidential Version." The Contractor shall be responsible for labeling the front cover of the Public Version of the Final Report with the term "Public Version." The front cover of every Final Report shall also contain the following disclaimer:

"This report was funded by the U.S. Trade and Development Agency (USTDA), an agency of the U.S. Government. The opinions, findings, conclusions or recommendations expressed in this document are those of the

author(s) and do not necessarily represent the official position or policies of USTDA. USTDA makes no representation about, nor does it accept responsibility for, the accuracy or completeness of the information contained in this report."

(b) The inside front cover of every Final Report shall contain USTDA's logo, USTDA's mailing and delivery addresses, and USTDA's mission statement. Camera-ready copy of USTDA Final Report specifications will be available from USTDA upon request.

(c) The Contractor shall affix to the front of the CD-ROM a label identifying the Host Country, USTDA Activity Number, the name of the Client, the name of the Contractor who prepared the report, a report title, and the following language:

"The Contractor certifies that this CD-ROM contains the Public Version of the Final Report and that all contents are suitable for public distribution."

(d) The Contractor and any subcontractors that perform work pursuant to the Grant Agreement must be clearly identified in the Final Report. Business name, point of contact, address, telephone and fax numbers shall be included for Contractor and each subcontractor.

(e) The Final Report, while aiming at optimum specifications and characteristics for the Project, shall identify the availability of prospective U.S. sources of supply. Business name, point of contact, address, telephone, and fax numbers shall be included for each commercial source.

(f) The Final Report shall be accompanied by a letter or other notation by the Client which states that the Client approves the Final Report. A certification by the Client to this effect provided on or with the invoice for final payment will meet this requirement.

J. Modifications

All changes, modifications, assignments or amendments to this contract, including the appendices, shall be made only by written agreement by the parties hereto, subject to written USTDA approval.

K. Study Schedule

(1) Study Completion Date

The completion date for the Study, which is December 31, 2011, is the date by which the parties estimate that the Study will have been completed.

(2) Time Limitation on Disbursement of USTDA Grant Funds

Except as USTDA may otherwise agree, (a) no USTDA funds may be disbursed under this contract for goods and services which are provided prior to the Effective Date of the Grant Agreement; and (b) all funds made available under the Grant Agreement must be disbursed within four (4) years from the Effective Date of the Grant Agreement.

L. Business Practices

The Contractor agrees not to pay, promise to pay, or authorize the payment of any money or anything of value, directly or indirectly, to any person (whether a governmental official or private individual) for the purpose of illegally or improperly inducing anyone to take any action favorable to any party in connection with the Study. The Client agrees not to receive any such payment. The Contractor and the Client agree that each will require that any agent or representative hired to represent them in connection with the Study will comply with this paragraph and all laws which apply to activities and obligations of each party under this Contract, including but not limited to those laws and obligations dealing with improper payments as described above.

M. USTDA Address and Fiscal Data

Any communication with USTDA regarding this Contract shall be sent to the following address and include the fiscal data listed below:

U.S. Trade and Development Agency
1000 Wilson Boulevard, Suite 1600
Arlington, Virginia 22209-3901
USA

Phone: (703) 875-4357
Fax: (703) 875-4009

Fiscal Data:

Appropriation No.:	1110/111001
Activity No.:	2010-51028A
Reservation No.:	2010510032
Grant No.:	GH2010510009

N. Definitions

All capitalized terms not otherwise defined herein shall have the meaning set forth in the Grant Agreement.

O. Taxes

USTDA funds provided under the Grant Agreement shall not be used to pay any taxes, tariffs, duties, fees, or other levies imposed under laws in effect in Host Country. Neither the Client nor the Contractor will seek reimbursement from USTDA for such taxes, tariffs, duties, fees, or other levies.

ANNEX 5

TERMS OF REFERENCE
(FROM USTDA GRANT AGREEMENT)

Annex I

Terms of Reference

Objective and Background

The objective of the feasibility study ("Study") for the IDB Placencia Peninsula Pilot Wastewater Management System Project ("Project") is to provide a roadmap and guidelines for the implementation of a pilot wastewater management system for the Placencia Peninsula.

This Study is one of two activities brought to USTDA by the Inter-American Development Bank ("IDB") for consideration in connection with the Caribbean Regional Fund for Wastewater Management ("CReW"), which is financed and managed by the IDB, in partnership with the Global Environment Facility and the United Nations Environment Program. The CReW seeks to test innovative financing approaches to support the development of wastewater management projects throughout the Caribbean, beginning with the implementation of five pilot projects. The other USTDA activity associated with the CReW, a technical assistance the rehabilitation of priority wastewater facilities in Jamaica, is the subject of a separate USTDA Grant Agreement.

General Considerations for Deliverables and Documents

The Contractor shall undertake a quality control review process, including a technical and editorial review, of all deliverables and documents submitted to the Ministry of Finance ("Grantee") to ensure readability, accuracy, and consistency. The interim deliverables specified in these Terms of Reference shall serve to keep the Grantee informed about the Contractor's work on the Study and to ensure that the Contractor's findings are acceptable to the Grantee before critical decisions are made on the Study. The Contractor shall submit monthly progress reports to the Grantee.

Activities

Task 1: Data Collection and Review

The demographic and land-use characteristics of the Placencia Peninsula require that there be a detailed evaluation of the location and nature of wastewater sources throughout the Placencia Peninsula region. As a result, the Contractor shall:

1.1 Acquire from the all applicable government agencies in Belize, all studies, engineering design documentation, wastewater generation and water quality data, operational data, and environmental regulatory documents relative to wastewater generation, collection, and treatment in the Placencia Peninsula region. At a minimum, this shall include the preliminary feasibility analysis conducted by Engineers Without Borders in 2006 for defining wastewater management in the Placencia Peninsula region.

1.2 Coordinate and participate in regular meetings with the assigned government representative to share findings and obtain feedback on Study progress and issues as they arise.

1.3 Utilize the data and information collected to identify outstanding data needs in order to complete the Study.

1.4 Determine all statutory and regulatory requirements relevant to the Project, including all laws and regulations that pertain to the design and implementation of the collection, treatment, and discharge of wastewater to receiving waters in Belize, as well as international norms.

Deliverable #1:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 1. Specifically, the Contractor shall develop a database of existing information relevant to Project implementation including, but not limited to, the following:

- Existing design/pre-design documents and any other technical data;
- Existing reports;
- Existing studies on population growth (fix and floating), water demand, expansion areas, and land use; and
- Regulatory requirements and any other information important to assessing wastewater collection, treatment, and discharge requirements in the Placencia Peninsula region, including a detailed list of parameters and the entity responsible for its enforcement. The Protocol Concerning Pollution from Land-Based Sources and Activities to the United Nations Convention for the Protection and Development of the Marine Environment in the Wider Caribbean Region shall also be used as a guide.

Task 2: Potable Water Source Investigation and Characterization

The Contractor shall define and characterize all available sources of potable water used for residential and commercial purposes on the Placencia Peninsula in order to further investigate the magnitude of wastewater generation on the Placencia Peninsula. The Contractor shall:

2.1 Define all potable water sources for current and projected land use on the Placencia Peninsula, including any water provided by 1) the Government of Belize through piping from locations outside of the Placencia Peninsula; 2) the Placencia Peninsula and Seine Bight Water Boards; and 3) other private sector entities on the Placencia Peninsula.

2.2 Based on annual reports and financial records of the Placencia Peninsula and Seine Bight Water Boards, and based on a survey of water users on the Placencia Peninsula that obtain water from others sources, determine current and historical water consumption at major wastewater sources on the Placencia Peninsula including existing community/village areas and the major resorts.

Task 3: Wastewater Sources Analysis

The Contractor shall identify and evaluate the current and future sources of wastewater in the Placencia Peninsula region in order to determine any unique characteristics that may affect the ultimate design of the collection and treatment works developed through the Project. The Contractor shall:

3.1 Identify and evaluate existing residential and commercial generators of wastewater for collection and treatment, including seasonal wastewater generation variations and any other issues that may influence the design of an effective wastewater management system. This shall include: 1) the identification of the existing wastewater treatment facilities owned and operated by resorts and other commercial establishments on the Placencia Peninsula; 2) the initial capital costs and current operational costs of these facilities; and 3) the date the facilities were placed in operation and their current means of wastewater management. Any proposed resort areas (including expansion of existing resorts) shall also be evaluated to determine proposed wastewater management practices.

3.2 Identify and evaluate clustered wastewater generator areas, such as the two communities, to determine whether separate wastewater management systems can be developed to individually serve these clustered areas. In addition, identify the projected future wastewater generation rate over a 25-year period.

3.3 Determine the quantity of wastewater to be collected and treated, including average and peak demands/seasonal variations for all resorts on the Placencia Peninsula.

3.4 Determine the areas and regions of the Placencia Peninsula from which wastewater might be economically collected by a regional collection system (that would be expanded to the mainland where the wastewater facility will be located), including consideration of 1) a centralized collection and treatment system serving the entire Placencia Peninsula; 2) centralized systems serving specific portions of the Placencia Peninsula, such as the villages; and 3) decentralized systems for resorts and individual residential/commercial generators. In addition, this evaluation shall also include mainland areas (such as the village of Independencia) outside of the Placencia Peninsula where a wastewater treatment facility serving the Placencia Peninsula may be located.

3.5 Define target wastewater treatment standards based on existing laws and regulations in Belize and on sustainable and established international sound practice standards applicable to the region.

3.6 Identify the necessary approvals and permits to be obtained for wastewater treatment and discharge infrastructure and determine any issues related to obtaining such permits.

3.7 Identify currently undeveloped areas that may be served by a future expansion of the Project.

Deliverable #2:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Tasks 2 and 3. Specifically, the Contractor shall prepare an inventory

and analysis of existing and future wastewater generators including, but not limited to, community, residential, and commercial (such as resorts) sources. The inventory shall include an identification of existing or pending regulatory requirements and necessary permits, and shall include an identification of the potential generators of hazardous liquid waste and their current practices for disposal.

Task 4: Wastewater Collection Analysis

The Contractor shall:

4.1 Describe the soil quality and its permeability profile.

4.2 Define the feasibility of operating a conventional sewer system, including gravity sewers, pumping stations, and trunk sewers considering permeability of the soil, aquifer conditions, water sources, contamination risks, and estimated costs. This shall include a general concept design of main sewers in order to have an estimate of diameter, length, and need of pumping stations. A cost estimate shall be made with these assumptions and flow estimates shall include infiltration and rainfall flows.

4.3 Evaluate the applicability of alternative wastewater collection technologies and approaches to serve the Placencia Peninsula as a whole or to serve areas with clustered wastewater generators (such as the communities). The Contractor shall specifically consider the systems recommended in the preliminary feasibility analysis conducted by Engineers Without Borders in 2006.

Deliverable #3:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 4. Specifically, the Contractor shall prepare an assessment of alternative wastewater collection systems for the Placencia Peninsula region based on the physical characteristics, flows generated, available technology, applicability, and costs (investment, operation, and maintenance) to determine the most feasible option for a sewage collection system.

Task 5: Wastewater Treatment Technologies Evaluation

The Contractor shall evaluate wastewater treatment technologies that can comply with target performance standards in effect in Belize at the time of the Study and to international sound practice standards. At a minimum, the Contractor shall:

5.1 Identify and evaluate technologies for the treatment of wastewater at the residential, community, and Placencia Peninsula-wide level to meet the target effluent quality for discharge.

5.2 Identify all potentially viable treatment alternatives and sites based on effectiveness, implementability, sustainability, and cost (this may include mainland sites off of the Placencia Peninsula). Treatment options shall include sludge treatment and disposal.

5.3 Consider treatment alternatives that would allow the use of technologies and treatment approaches that are available in Belize or in conjunction with imported technologies.

5.4 Identify decentralized approaches to wastewater management that may be viable for individual residences and other small quantity generators in isolated locations throughout the Placencia Peninsula.

5.5 Determine the potential sources for all materials that may be required for development of community or Placencia Peninsula-wide collection and treatment systems. Develop a list of prospective U.S. sources of supply of the technologies viewed to be viable for the Project that must be imported. Business name, point of contact, address, telephone, and fax numbers shall be included for each commercial source.

Deliverable #4:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 5. Specifically, the Contractor shall prepare an evaluation of viable and sustainable technologies that are capable of effectively treating wastewater generated within the Placencia Peninsula region. At a minimum, this evaluation shall include an assessment of both primary and secondary treatment processes for centralized community or Placencia Peninsula-wide treatment systems, as well as decentralized systems that may be viable for individual residences, commercial establishments, and major resorts. All individual solutions must include a sludge management program, including collections and disposal, if applicable.

Task 6: Economic Analysis

The Contractor shall conduct a detailed economic evaluation of potentially viable alternatives identified in previous tasks. At a minimum, the Contractor shall:

6.1 Prepare detailed cost estimates of the potentially favorable technologies based on capital expenditures (and re-investment cost separate for civil and electro-mechanical works) and operating/maintenance expenditures for a period of 20 years separately for the sewer network and the wastewater treatment plant. This analysis shall include consideration of all possible alternatives for cost recovery from fees to be collected from wastewater generators. In addition, a present worth analysis shall be prepared for cost comparisons of technical alternatives.

6.2 Identify the most favorable alternatives, based on both technical and economic cost effectiveness and sustainability, as well as prevailing conditions in Belize and on the Placencia Peninsula. This shall include potential costs and revenues that may be derived through use of any off-Placencia Peninsula location by wastewater sources that may be located near a mainland treatment location. This exercise shall also include at least three scenarios with different collection rates, connectivity of clients, cost fluctuation, and tariff levels.

6.3 Perform a detailed evaluation of the most suitable alternatives, and with the assistance of the Project stakeholders (including Belize Water Services Limited and the IDB), select the recommended alternative for a wastewater collection and

treatment system to serve the Placencia Peninsula. Criteria to be used in this evaluation and selection process shall include expected effectiveness and reliability, environmental mitigation, implementability and constructability, affordability, expandability, operational considerations, ability to be phased, sustainability, and life cycle costs.

6.4 Based on an assessment of customers served by the selected alternative, evaluate the tariff levels necessary to obtain full costs recovery for the wastewater collection and treatment system. This analysis shall consider capacity to assess fees, willingness to pay, cross subsidy tariff systems, and special charges for resorts based on an occupancy fee.

6.5 Evaluate and define potential phasing of the Project's infrastructure and technical development to conform or correlate to possible limitations in financial resources to fully implement the Project.

Deliverable #5:

The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 6. Specifically, the Contractor shall develop cost estimates and an economic model aimed at assessing initial and life cycle costs associated with the recommended alternatives for collecting and treating wastewater within the Placencia Peninsula region. The model shall include tariff setting recommendations and schemes that achieve full cost recovery in the most socially-sustainable manner. The model shall, at a minimum, present all economic aspects (near-term and long-term) of the selected wastewater collection and treatment system.

Task 7: Conceptual Design Development

Based on the economic analysis and technical definition of the wastewater collection and treatment alternatives, the Grantee shall advise Contractor as to the selected alternative. The Contractor shall then develop a conceptual design of the selected wastewater collection and treatment system and its individual infrastructure components. The conceptual design shall suggest, when possible, prospective U.S. technologies and U.S. sources of supply that fulfill the technical needs of the Project. Business name, point of contact, address, telephone, and fax numbers shall be included for each commercial source. The Contractor shall:

7.1 Develop a detailed technical definition of the selected wastewater collection and treatment system and its individual component facilities and systems.

7.2 Prepare conceptual designs of the selected wastewater collection and treatment system components. Elements to be presented shall include, at a minimum, a preliminary graphical layout of the proposed facilities, hydraulic profile, preliminary design report, process flow schematics, and component details/specifications that clearly illustrate the intended components of the collection and treatment infrastructure. The conceptual design shall consider potential future expansion of the Project to serve currently undeveloped areas.

7.3 Develop a preliminary Project institutional management plan presenting requirements for accomplishing the design, construction, operation, and

maintenance of the selected wastewater collection and treatment system. At a minimum, this shall define the following aspects:

- Organizational chart with position and task descriptions for individuals and units;
- Identification of any administration facilities needed; and
- Budgeting.

Deliverable #6:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 7. Specifically, the Contractor shall prepare a detailed conceptual design of the selected wastewater collection and treatment system establishing, at a minimum, preliminary technical design criteria and specifications of all major components associated with collection, treatment, and discharge components of the selected wastewater collection and treatment system. The Contractor shall develop a management plan for implementing the various elements of the Project.

Task 8: Preliminary Environmental Analysis

The Contractor shall conduct a preliminary review of the Project's environmental impact with reference to local requirements and those of multilateral development banks (such as the World Bank and the IDB). This review shall identify potential negative impacts, discuss the extent to which they can be mitigated, and develop plans for a full environmental impact assessment in anticipation of the Project moving forward to the implementation stage. Specifically, the Contractor shall:

8.1 Conduct a preliminary environmental impact evaluation of the selected wastewater collection and treatment system, including the discharge system and the site selected.
8.2 Prepare recommendations for mitigating any negative environmental impacts of the selected wastewater collection and treatment system.
8.3 Prepare a preliminary community consultation plan.
8.4 Prepare a preliminary monitoring plan.
8.5 Prepare a preliminary emergency response plan.

Deliverable #7:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 8. Specifically, the Contractor shall prepare a preliminary environmental impact analysis of the selected wastewater collection and treatment system, including both near-term construction environmental impacts, as well as long-term environmental impacts associated with the development of a wastewater management system throughout the Placencia Peninsula.

Task 9: Developmental Impact Assessment

For the benefit of those interested in the Project, the Contractor shall assess the development benefits associated with the Project and the methodology for measuring

those benefits. The assessment shall include examples of the development benefits that would be expected in the Host Country if the Project is implemented as outlined in the Study. The Contractor shall focus on examples from the categories listed below and shall develop a methodology for assessing these impacts over time. The Contractor shall only list benefits in the categories that are applicable to the Project. The categories to be considered are as follows:

- *Infrastructure*: Recommended wastewater-related infrastructure improvements, modernization, or expansions.
- *Market-Oriented Reform*: Recommended regulations, laws, or institutional changes and the anticipated impact they would have if implemented.
- *Human Capacity Building*: The number and type of jobs that would be needed to implement, manage, and operate the Project, as well as the number of people who are anticipated to receive training.
- *Technology Transfer and Productivity Improvement*: Productivity improvements and technology transfers associated with Project implementation, such as new wastewater-related technologies or equipment.
- *Other*: Any other developmental benefits of the Project, including enhanced revenues and any spin-off or demonstration effects, such as the replication of unique technical or financial approaches in managing other similar wastewater conditions in Belize or other countries in the region.

Deliverable #8:
The Contractor shall prepare and deliver to the Grantee a developmental impact assessment, including all work performed under Task 9.

Task 10: Implementation Plan and Schedule

The Contractor shall develop an implementation plan to accomplish the individual tasks defined in the conceptual design. The implementation plan shall include procedures required to accomplish final design and permitting of all recommended component facilities. The Contractor shall also include a Project implementation schedule to measure the pace of progress in implementing the Project. At a minimum, the Contractor shall:

10.1 Identify all required additional work to accomplish final design and permitting for the required physical components of the selected wastewater collection and treatment system.

10.2 Develop an implementation plan presenting the resources and procedures required for final design, permitting, financing, constructing, and implementing the recommended facilities defined in the conceptual design. If required due to financial limitations and the overall cost of required infrastructure, the implementation plan will provide recommendations for Project implementation phasing, including the potential future expansion of the Project to serve currently undeveloped areas.

10.3 Develop an implementation schedule (including development phasing) for all system components based on the probable implementation and financing

activities. In developing the implementation schedule, consideration shall be given to phased construction to allow critical components to be placed in service on an accelerated schedule or to meet limitations that may result from the availability of financial resources.

10.4 Develop a budget for each component of the implementation plan.

10.5 Develop a draft terms of reference for the completion of the design of the selected wastewater collection and treatment system.

Deliverable #9:
The Contractor shall prepare and deliver to the Grantee an implementation plan and schedule, including all work performed under Task 10.

Task 11: Financial Plan

Based on the conceptual design and on the projected capital costs of the selected wastewater collection and treatment system, the Contractor shall develop a financial plan based on the IDB's plan for establishing the pilot prototype financial mechanism as part of the CReW. This financial plan shall include the means by which the Project will be financed, including financial sources that would support the export of U.S. equipment to Belize. The Contractor shall:

11.1 Develop a financing plan for implementation of all system components based on the CReW approach and on any Project implementation phasing that may be due to the limitations associated with available financial resources.

11.2 Evaluate the means by which prospective U.S. sources of supply can participate in the likely procurement process established for Project implementation.

Deliverable #10:
The Contractor shall prepare and deliver to the Grantee a report containing all work performed under Task 11. Specifically, the Contractor shall prepare a financial plan providing the basis by which financial resources can be secured for Project implementation through the CReW. The financial plan shall include the criteria, conditions, and requirements that need to be met to allow for Project implementation support from key financial institutions.

Task 12: Final Report

The Contractor shall prepare and deliver to the Grantee and USTDA a substantive and comprehensive final report of all work performed under these Terms of Reference ("Final Report"). The Final Report shall be organized according to the above tasks, and shall include all deliverables and documents that have been provided to the Grantee. The Final Report shall be prepared in accordance with Clause I of Annex II of the Grant Agreement.

Notes:

(1) The Contractor is responsible for compliance with U.S. export licensing requirements, if applicable, in the performance of the Terms of Reference.

(2) The Contractor and the Grantee shall be careful to ensure that the public version of the Final Report contains no security or confidential information.

(3) The Grantee and USTDA shall have an irrevocable, worldwide, royalty-free, non-exclusive right to use and distribute the Final Report and all work product that is developed under these Terms of Reference.

ANNEX 6

COMPANY INFORMATION

A. Company Profile

Provide the information listed below relative to the Offeror's firm. If the Offeror is proposing to subcontract some of the proposed work to another firm(s), the information requested in sections E and F below must be provided for each subcontractor.

1. Name of firm and business address (street address only), including telephone and fax numbers:

2. Year established (include predecessor companies and year(s) established, if appropriate).

3. Type of ownership (e.g. public, private or closely held).

4. If private or closely held company, provide list of shareholders and the percentage of their ownership.

5. List of directors and principal officers (President, Chief Executive Officer, Vice-President(s), Secretary and Treasurer; provide full names including first, middle and last). Please place an asterisk (*) next to the names of those principal officers who will be involved in the Feasibility Study.

6. If Offeror is a subsidiary, indicate if Offeror is a wholly-owned or partially-owned subsidiary. Provide the information requested in items 1 through 5 above for the Offeror's parent(s).

7. Project Manager's name, address, telephone number, e-mail address and fax number .

B. Offeror's Authorized Negotiator

Provide name, title, address, telephone number, e-mail address and fax number of the Offeror's authorized negotiator. The person cited shall be empowered to make binding commitments for the Offeror and its subcontractors, if any.

C. Negotiation Prerequisites

1. Discuss any current or anticipated commitments which may impact the ability of the Offeror or its subcontractors to complete the Feasibility Study as proposed and reflect such impact within the project schedule.

2. Identify any specific information which is needed from the Grantee before commencing contract negotiations.

D. Offeror's Representations

Please provide exceptions and/or explanations in the event that any of the following representations cannot be made:

1. Offeror is a corporation *[insert applicable type of entity if not a corporation]* duly organized, validly existing and in good standing under the laws of the State of _____. The Offeror has all the requisite corporate power and authority to conduct its business as presently conducted, to submit this proposal, and if selected, to execute and deliver a contract to the Grantee for the performance of the Feasibility Study. The Offeror is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment, or ineligible for the award of contracts by any federal or state governmental agency or authority. The Offeror has included, with this proposal, a certified copy of its Articles of Incorporation, and a certificate of good standing issued within one month of the date of its proposal by the State of _____.

2. Neither the Offeror nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of

offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.

3. Neither the Offeror, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.

4. There are no federal or state tax liens pending against the assets, property or business of the Offeror. The Offeror, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.

5. The Offeror has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The Offeror has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected Offeror shall notify the Grantee and USTDA if any of the representations included in its proposal are no longer true and correct at the time of its entry into a contract with the Grantee. USTDA retains the right to request an updated certificate of good standing from the selected Offeror.

Signed: _____
(Authorized Representative)

Print Name: _____

Title: _____

Date: _____

E. Subcontractor Profile

1. Name of firm and business address (street address only), including telephone and fax numbers.

2. Year established (include predecessor companies and year(s) established, if appropriate).

F. Subcontractor's Representations

If any of the following representations cannot be made, or if there are exceptions, the subcontractor must provide an explanation.

1. Subcontractor is a corporation *[insert applicable type of entity if not a corporation]* duly organized, validly existing and in good standing under the laws of the State of _____. The subcontractor has all the requisite corporate power and authority to conduct its business as presently conducted, to participate in this proposal, and if the Offeror is selected, to execute and deliver a subcontract to the Offeror for the performance of the Feasibility Study and to perform the Feasibility Study. The subcontractor is not debarred, suspended, or to the best of its knowledge or belief, proposed for debarment or ineligible for the award of contracts by any federal or state governmental agency or authority.

2. Neither the subcontractor nor any of its principal officers have, within the three-year period preceding this RFP, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a federal, state or local government contract or subcontract; violation of federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, violating federal or state criminal tax laws, or receiving stolen property.

3. Neither the subcontractor, nor any of its principal officers, is presently indicted for, or otherwise criminally or civilly charged with, commission of any of the offenses enumerated in paragraph 2 above.

4. There are no federal or state tax liens pending against the assets, property or business of the subcontractor. The subcontractor, has not, within the three-year period preceding this RFP, been notified of any delinquent federal or state taxes in an amount that exceeds $3,000 for which the liability remains unsatisfied. Taxes are considered delinquent if (a) the tax liability has been fully determined, with no pending administrative or judicial appeals; and (b) a taxpayer has failed to pay the tax liability when full payment is due and required.

5. The subcontractor has not commenced a voluntary case or other proceeding seeking liquidation, reorganization or other relief with respect to itself or its debts under any bankruptcy, insolvency or other similar law. The subcontractor has not had filed against it an involuntary petition under any bankruptcy, insolvency or similar law.

The selected subcontractor shall notify the Offeror, Grantee and USTDA if any of the representations included in this proposal are no longer true and correct at the time of the Offeror's entry into a contract with the Grantee.

Signed: _____
(Authorized Representative)

Print Name: _____

Title: _____

Date: _____